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By

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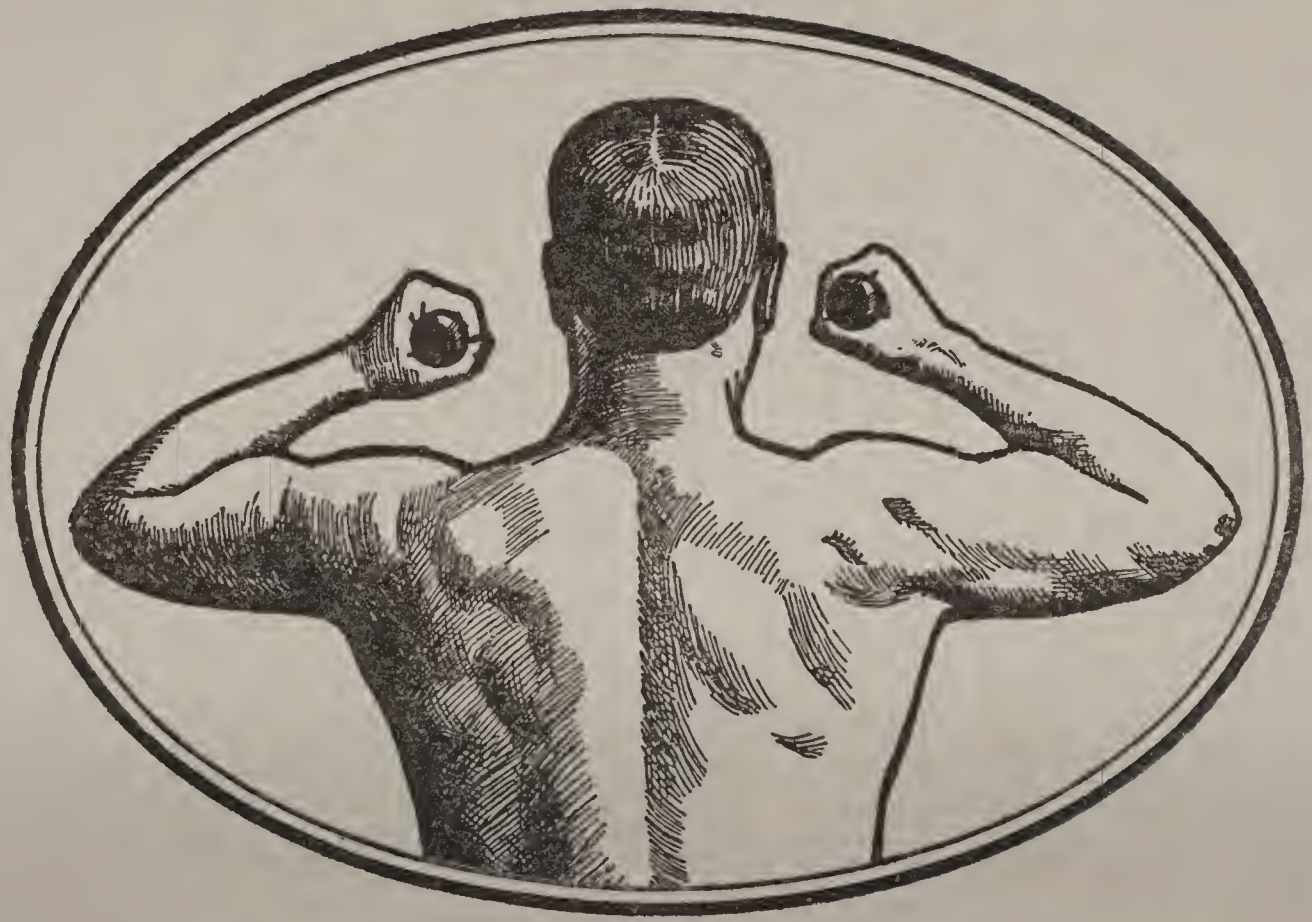

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PREFACE.

A glance at the index will impress one that this subject has been exhaustively treated.

A glance at the contents will confirm this impression.

An investigation will reveal conflicts of opinion, a condition to be sought rather than avoided; a healthy condition in any progressive movement. It causes others to think, to weigh, to decide.

Further investigation will show that much of the material has been gathered from various sources; and yet much has come from the author's practical experience, covering a period of more than a quarter of a century.

Those who are familiar with the author's former writings will observe two things: First, he has not stood still; second, he becomes less radical as the years go by, believing that even a good cause may be injured rather than helped by too radical an advocacy; hence, in commenting upon the three great enemies of an all-round development, he has thought it sufficient to be suggestive.

CHICAGO, ILL. EDWARD B. WARMAN.

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SCIENTIFIC
PHYSICAL TRAINING

A FEW THOUGHTS PREPARATORY TO

THE CARE OF THE BODY

&

MAN

"A combination and a form, indeed, where every god did seem to set his seal to give the world assurance of a man."

Science is a knowledge of facts and forces. How much of physical training we have that is not scientific; just exercise for the sake of exercise.

Nature and science may run on parallel lines, yet be totally different in construction. Science is a knowledge or better understanding of nature. That which is done *naturally* is not always done *knowingly*. One's nature may be perverted; besides, natures are as varied as individuals; hence that which is natural to one person may be unnatural to another. For instance, it *may* be natural for a man lifting 1,500 pounds to "lift 500 of the amount with the muscles, and 1,000 by the effort of the will."

Of course there is no muscular action without will power, but it is not naturally in a ratio of two to one. What *is* will power? It is nervous force; but it is a secondary, not a primary element of strength. This fact has been illustrated time and again by those who were muscularly weak performing some feat of unusual strength in a moment of great excitement. In such a case the entire muscular force of the body was brought

into action, but the nervous force was aroused beyond its usual or healthful action. But what was the result? An inevitable reaction. Is it desirable? Is it productive of the one great object of physical training—health of body and mind?

Endurance is but another term for continuous expenditure of strength. *But*, when the expenditure of the nervous force (the wasting of the nerve tissues) exceeds that of the muscular force (the wasting of the muscular tissues), is it a desirable quality to be introduced into a system of physical training?

Physical training is one thing; the care of the body quite another.

The majority of those who take regular training in a gymnasium or in field sports neglect the care of the body by violating the laws of hygiene; by the use of alcoholic drinks; by the use of tobacco in any form; also by over-eating, over-training, irregular habits, etc., etc. The life of the average gymnast is, in consequence, comparatively short.

No gymnasium is necessarily complete because it is fully equipped with first-class apparatus. There needs must be a competent physical director; one that is versed, not only in various exercises, but in the relation those exercises bear to the body.

TWO SPECIAL OBJECTS.

The *primary* object of all physical exercise is *health*. If you have it, then you should exercise to keep it. The *secondary* object is a *graceful and proper carriage of the body*. No teacher should lay claim to proficiency who does not exemplify these principles in his own personality, and no book to completeness that disregards these same fundamental principles in its teachings.

The object of physical training should be not so much with a view to muscular *development* as to muscular *health* and muscular *strength*. It is not the size and hardness of one's muscles that indicate strength, but the quality. It is this mistaken idea (the making of *brutes* instead of *men*) that has caused so much to have been written against anything that tinges of manly sports.

Let the poor, hollow-chested, bad-livered dyspeptic grumbler against physical exercise come out of his little den, doff his coat and vest, breathe freely and fully of the fresh air the Almighty has so freely and so plentifully given; then let him take up a pair of Indian clubs, or hurl the ball, or pitch the quoit, or poise the rifle, or tug at the oar, or have a round with the gloves, or a bout at wrestling, or a spin on the wheel, and he will go back to that self-same den and acknowledge to the world, through the silent but powerful medium of the pen, that he was wrong in attacking the thing itself when his blows should have been levelled at its misapplication and abuse.

Many gymnasts are abnormally developed—often naturally, not scientifically. They lay great stress upon the size of the biceps muscle. The public, too, are frequently misled. How common it is to say to a strongly-built man, "You appear to be a very strong man, let me feel your muscle." Which of his many muscles do you feel? Only one, the biceps. Is it a criterion of strength? Not by any means. It is often an indication of weakness; weakness of some other portion of the body; of some other muscle which has been drained of its needed blood supply; possibly the triceps (the striking muscle) has been neglected. For this reason an expert oarsman should be an expert boxer, thus equalizing the consequent strength and development of the arm.

It has been said of Hanlon, the great oarsman, that, so large are his biceps muscles and so small the triceps, he could pull a man's head off, but he could not knock a man down.

Should boxing be recommended? Is it manly? Yes, when a *man* boxes. Anything that a *man* does is *manly*, anything that a *woman* does is *womanly*. Next to God Himself there is nothing grander than a manly man or a womanly woman.

Physical training, in some vigorous form—not merely a namby-pambyism of a few sleepy movements—should be indulged in *daily* by every one engaged in sedentary employment, and by every teacher and student.

How many weak, debilitated, half-alive men and women are standing at the doors of our halls of learning and asking admit-

tance. It were as reasonable to adorn a tumble-down shanty with a mansard roof as to give to a physical wreck an accomplished education.

Watch the pupils as they leave the colleges and seminaries, You will observe with many of them that the head seems running away with the body; not because the head is so large, but because the body is so small. If you want a fair representative of the average student who neglects physical training place a large, round doughnut on a hairpin.

AN ALL-ROUND ATHLETE.

I am a firm believer in the all-round athlete as well as in the all-round Christian—mentally, morally. physically.

It is not uncommon to find mental monstrosities, moral monstrosities and physical monstrosities. An over-development in any one of these lines is not desirable, and cannot be had without causing a detriment to the two others.

No theological course should be considered complete without a thorough training in gymnastics. It is not below the dignity of any minister to indulge even to the extent of boxing or wrestling. It would brighten many a man's theology and thus prove a blessing to mankind in general. There are too many weaklings, too many lightweights at the sacred desk. We need more giants; more intellectual and physical giants, more such men as were Spurgeon, Beecher, Brooks, and others.

Do not sound and sturdy bodies, and due attention daily in keeping them in repair have much to do with their ability at all times to cope with the duty lying next to them? Had not the splendid physique and abounding vitality of Henry Ward Beecher no connection with his ability to attend to his duty as pastor, author, editor and lecturer? Had not the magnificent breadth and depth of Spurgeon's chest and his splendid outfit of vital organs nothing to do with his great power and influence as a preacher of world-wide reputation? Have not the great bodies of the two giants of the American pulpit—Joseph Cook and the late Phillips Brooks—proved most valuable accessions to their great brains?

These men, it may be said, were physically so by nature. True, but that does not weaken the argument in favor of daily physical exercise for those who are less fortunate in their physical make-up, yet have high and noble aspirations for the good of their fellow men.

I most heartily endorse what Henry Ward Beecher termed

MUSCULAR CHRISTIANITY.

Old Peter Cartwright, of Ohio, also believed in muscular Christianity. and he backed up his belief by applying it most forcibly when, in his famous camp-meetings, he was interrupted by some rough character. If this interruption occurred during the singing of a hymn, the reverend gentleman did not cease his singing, but left the rudely constructed platform, and without changing the time or losing the tune, he advanced firmly to the intruder and administered some sound theology not in the decalogue. Still he sang, until his "Glory to God" rang through the woods as a signal that once more right had prevailed. Invariably, his antagonist ever after respected him.

Not long ago when traveling through the New England States, I learned of a Western evangelist who had a somewhat similar experience. He had the moral courage to speak his convictions. One Sabbath morning he referred to a certain saloon in the town; a saloon that had—more than all others—proved a pitfall to many a young man, and an eye-sore to the whole community. He denounced the saloon-keeper in the strongest terms. Next day this man of God and this man of the world met. The following interesting conversation and scene took place:

"I believe you are the evangelist that is preaching in our town."

"I *am*, sir."

"I understand that you spoke of me yesterday in a very uncomplimentary manner."

"I *did*, sir."

"Well, you're the man I'm looking for; I intend to give you a thrashing."

"Just wait a moment," said the minister calmly, "and I'll accommodate you. I'm an Irishman." Suiting the action to the word, he removed his coat, folded it methodically, laid it on the sidewalk, turned toward the saloon-keeper, and said: "Come on. I'm ready. By the help of God *I'll* do the thrashing." And he did. He was well versed in the manly art.

Some persons have an idea that a Quaker won't fight. It's a mistake. It depends.

A noted Quaker minister was one day discoursing on the subject of Christian endurance; but he did not go into details as to the *limit* of that endurance other than that noted in the Scriptures: "Whosoever shall smite thee on thy right cheek turn to him the other also."

A noted character in the neighborhood was present, and he had a desire to test the reverend gentleman's ability to take his own prescription. Meeting him a few days thereafter he applied the test by dealing him a severe blow upon the cheek. Without a murmur the minister turned to him the other cheek also. This was a surprise to his assailant, but a greater surprise was in store for him. The good, old Quaker, after receiving the second blow, said: "Friend, thee hast done thy part, I must now do mine. Thee hast seen that I have observed the Scriptural injunction to the letter; and further the Scriptures saith not. I must now do my part by giving thee thy just reward. I must chastise thee."

He did, and most unsparingly at that. Scientific physical training; a knowledge of *facts* and *forces*.

I do not cite these cases for the purpose of inculcating pugilistic principles, or to arouse, unnecessarily, the ire of any clergyman or other public speaker. It is my purpose to show the advantage one has in possessing a knowledge and being sufficiently practiced in the manly art of self defence, and in keeping one's self in readiness for any emergency by a thorough and systematic training in general gymnastic exercises for health and strength.

"In time of peace prepare for war." You may some time be situated like the man I met in Old Mexico. In his belt he

carried a brace of revolvers and two knives. In answer to my inquiry as to whether he ever had any occasion to use them, he said: "Not often, stranger, but when I *do* need 'em, I need 'em most awfully —— bad."

Every man should possess nerve, strength and science. Some men possess nerve, but are lacking in strength and science; others possess strength, but are lacking in nerve and science. Strength *and* science are strong elements in the construction of nerve force.

Every one admires a man of nerve; a man who has the moral courage to speak his convictions, and the physical ability, if needs be, to back them.

The minister or public speaker who suppresses the expression of his true convictions for the sake of the almighty dollar, or for the purpose of catering to the public, to the pew-holder or even to the mighty "press," is a moral coward, totally unfit and unworthy of the place he occupies.

One should strike as straight and as powerfully from the shoulder, mentally and morally, as he would, or as he *should*, were he to strike physically.

Has this anything to do with scientific physical training? Yes, everything. It teaches that the perfectly developed man is he who is developed mentally, morally, physically. In developing the mind, one should also exercise the body, and thus have both healthy and strong.

It has been said that Milton's blindness was the result of all mental and no physical work; he was a martyr to dyspepsia.

One who desires good health must be *temperate;* temperate in *all* things. Food feeds not only the body but the brain, the better the food the better the thought, but to reap the greatest benefit, either for mental or physical work, there must be a due amount of exercise.

OF ALL THE SYSTEMS OF PHYSICAL TRAINING, WHICH IS THE BEST?

That one which is best suited to meet the individual needs of the greatest number of persons; that system which can be

taken regularly every day; that which requires the least expenditure of time, money and nervous force; that which has a purpose, a *definite* purpose in every exercise.

Is there such a system?

Yes.

Whence did it originate?

From the *school of experience.*

Is it original with the author of this book?

Yes, as a system. Only a few of the exercises are *new.* Some of them have been known and practiced for years; practiced indiscriminately, unscientifically and often injudiciously.

Wherein does it differ from other systems?

In presenting, impressing and urging as a *basic* principle *the needed care, as well as exercise, of the vital centres of the body.*

What evidence is there that other systems disregard this theory?

The fact that "teachers of physical training have increased and multiplied throughout the land, and yet the doctors, hospitals and cemeteries are more liberally patronized than in the dark ages." The fact that physical training has not been *scientifically* taught.

What is meant by neglecting the vital centres?

When the *vital supply* is *insufficient* for the *demand* of the *muscles* that *waste.* No matter how strong the muscles *appear* to be, the health is being undermined if the vital centres are not properly fed and exercised. Just as "a chain is no stronger than its weakest link," so with man—he must be taken in his entirety. Therefore, he is strong only when strong in the vital centres. The stomach, the heart, the liver, the lungs, the kidneys—all of these, as well as the muscles that surround them, must be strong and in health to produce the best results.

Sandow's strength is considered phenomenal, but it must be remembered that he has done all of his training *scientifically, knowingly.* He has made a thorough study of the anatomy of the human body, and when he lifts he gets a proper adjustment of every part thereof. While he does not *neglect* the

vital centres, he *overworks* them by his mode of living. The fires never go down—never get low ; the supply is even *more* than the demand. This, of course, is "a grievous fault," and grievously shall Sandow answer it.

Is this idea of the neglect of the vital centres merely theory, or can it be substantiated by positive facts?

I cite, herewith, three well-known cases that prove the truth of my theory, *i. e.*, if the waste exceeds the supply ; if certain muscles are developed at the expense of others ; if the arms and the legs have been developed at the cost and neglect of the vital centres ; then the result must be invariably and inevitably the exact opposite of that which is desired. Instead of health and longevity will come ill-health and premature death. The three cases to which I refer are all of a public character.

First.—Sim D. Kehoe, of Indian club fame. He neglected the lungs. They were not properly or sufficiently supplied with air and exercise. He wasted where he did not supply. He died of consumption. The Indian clubs *should* have been his physical salvation.

Second.—Dr. Winship, of health-lift fame. He lifted 2,700 pounds in harness. Only a baby lift compared to Sandow's. But what of the result during all of these years of lifting? True, there must have been cumulative strength, but the end came all too soon, the *outgo* exceeded the *income.* This is proved by the very nature of his death. He died of prostration.

Third.—A muscle-maker, with headquarters in New York city. For many years he worked on the supposition that hard, knotty, large muscles meant health. Two years ago he said to one of my pupils : "I have made a serious mistake. I have paid too much attention to my muscles, too little to my lungs, heart, stomach, liver," etc.

What is the result? A breaking down of the entire system. He said : "I fear I have found out my mistake too late." The last I heard of him he was in California seeking health ; seeking that which he had lost through physical training—*unscientific* physical training.

A *fourth* illustration. What a strange coincidence! While I am writing this article the sad news reaches me of the death of the eminent and beloved instructor and author, Baron Nils Posse.

Only thirty-four years of age. Just think of it! So young and so useful a life nipped in the very bud. His life gone out in a cause which he dearly loved; gone out in a cause which should have been to him—as he made it to others—a means of health and strength and length of years.

That which the autopsy revealed was not the direct, but the indirect cause of his death. He might have lived many years longer but for the neglect of his own physical condition. His vitality was allowed to get too low to resist the encroachment of the enemy. He overtaxed Nature. She rebelled. He had lost his equilibrium, hence had to succumb, as he had not sufficient power to rally his forces. He said to a friend of mine but a short time ago: "What's the difference if I can do fifty years' work in thirty?"

Whatever else may be said, it must be admitted that the cause of his death was due to the fact that the *outgo* was greater than the *income.*

These cases are here noted for the purpose of reinforcing my position and strengthening my theory that a closer relationship should exist between the heart, the stomach and the liver.

It was for this reason and the needs growing out of *unscientific* teaching that I arranged a system of exercises that has, in my own personal teaching, stood the test of years and has received the hearty commendation of thousands; its advocates and followers being represented in every State and Territory of this country and throughout the Dominion of Canada.

BENEFITS RESULTING FROM SCIENTIFIC TRAINING.

How to obtain the elixir of life.
How to retain the elixir of life.
How to conserve vital force.
How to gain vital economy.
How to stand.

How to walk.

How to breathe.

How to prevent becoming bent or rigid.

How to obtain suppleness.

How to retain suppleness.

How to prevent obesity.

How to remove obesity.

How to go up stairs without fatigue or injury.

How to retain one's youthful spirits while growing old gracefully.

How to add years to one's life and life to one's years.

How to make life worth the living.

All of the foregoing may be obtained by systematic, *scientific* physical exercises. The entire system *may* be taken without apparatus, hence at home, in the office, or wherever desired and most convenient.

I do not wish to be understood as opposing the work with apparatus or work in a gymnasium, when the exercises are given under the guidance of a skilful instructor.

I have never lost my interest in the gymnasium exercises, nor forgotten the benefits derived therefrom, since my own pleasant experiences in the old "Turner Halle" in Cleveland, O., and the never-to-be-forgotten days (and nights) in the old Fourth street gymnasium of Cincinnati, O., and these away back in the *sixties* and *seventies*.

I am not only a believer in, but a lover of Indian club exercises, having been a heavy-club performer (only 8 lbs. each) since 1868.

I also advocate the use of dumb-bells, after one has become familiar with the system of exercises *without* the dumb-bells. I would suggest light-weight dumb-bells, with vigorous action; never so heavy a bell as to require very slow movement. In my own case I use daily iron dumb-bells weighing five pounds each, but I take some of the movements (as given in my system of exercises) one hundred times each.

The question may be asked: If a believer in the gymnasium

and in various apparatus for physical development, why devise a system *without* apparatus?

It was done to meet the demands of thousands of men and women who cannot avail themselves of the privileges of the gymnasium nor of the benefits of apparatus, this being denied them in consequence of lack of time or money for the gymnasium, or space in which to use any apparatus other than dumb-bells.

This system is also intended to meet the requirements of schools in need of daily exercises without apparatus.

THE CARE OF THE BODY

One cannot properly care for the body unless the body is given its requisite amount of physical exercise, yet, on the other hand, physical exercise may be had daily and regularly without the requisite amount of care for the body. Therefore, these *should* be inseparable; they *must* be in order to reach the best results.

Although the one is as essential as the other, both are of sufficient importance to require separate treatment; hence I purpose devoting these pages to a dissertation and compilation of those things appertaining to health of body and health of mind, as also those things which are destructive of both body and mind.

Holier than any temple of wood or stone, consecrated to divine right and divine purposes, is the human body.

Healthiness and holiness are, indeed, intimately related; both words being derived from the same Anglo-Saxon root—hœl. Therefore, anything that conduces to the health of the body is, in a degree, reflex in its action upon the soul.

WHAT YE SOW YE SHALL REAP.

It is not my purpose to sermonize, yet I believe that the foregoing is an inevitable law the result of which no human being ever has or ever can escape. I also believe, however, that it applies as much to the *here* as to the *hereafter;* to the body as well as to the soul.

Many a poor fellow whose life is wasting and wearing away with some incurable malady, is only paying the penalty for the excesses of those young days when nothing he could eat or drink or do ever injured him.

He had the treasure of health, but he squandered it, and now comes the time of settlement, and he finds that "the wages of sin is death."

One should not sap the very vigor of his life by excesses and vicious indulgences.

EATING.

What an important matter to the athlete and to the seeker after health! How important in the care of the body!

Can any one establish a law that will apply with equal force to all persons? No. Every one must be his own physician. "What is one man's meat is another man's poison." Yet each one should be able to make a wise choice when he becomes cognizant—as he should—of the nature of foods upon the human system in general.

THE QUESTION OF DIET.

VARIOUS OPINIONS.

From a leading Chicago physician.

"The cause of Spring sickness arises from the waste elements which ought to be renewed from the blood by the liver in the form of bile. These are left in the blood and accumulate in the tissues. They give a muddy look to the complexion, a dull color to the eyes and an unpleasant taste to the mouth. Biliousness results.

"This arises principally from over-eating and the consumption of animal fats that are difficult to digest. Meats contain a large percentage of albumen (a nitrogenous substance) only 2½ to 3 ounces of which should be taken into the system daily. An extra allowance must be carried off by the kidneys, and if the liver is overworked its proper work will not be done thoroughly; hence much waste matter which should be removed will remain in the system, thus producing biliousness.

"The presence of bile also produces rheumatism, muscular pains, etc. For this reason we should follow Nature. She calls for a change of diet. There arises a dislike for rich foods; instead there is a craving for vegetables. Yet for dieting there is no universal sanitary code. Nature provides food suitable for each locality. Geological evidence is conclusive that man was not made until the whole arrangement of creation was perfected; therefore, wherever he chooses to live he finds food adapted to his wants.

"Do not infer from this that I am a vegetarian. I think man was created to be an omniverous animal. I can't agree with Sir Morrell MacKenzie that the longevity of the primeval race was due to the simple food of bread, milk and fruits. Living on figs might do for a resident of Palestine, but a diet containing a larger amount of nitrates is imperative in such a climate as that of Chicago and the Northwest.

"The patriarchs might have lived as long in Chicago, but not on Palestine diet. I have always considered, however, that the Biblical years meant moons. Nearly all primeval savages, like our own Indians, count by moons; hence, if the years of the oldest patriarch, Methuselah, be divided by thirteen lunar months, he was only about ninety when he died. Even this is an extraordinary old age in a hot country like Palestine, where humanity early matures and early declines.

"Longevity is not a case of food; *i. e.*, it is not attained by the *quality* but by the *quantity* of food and the regularity with which it is taken. There have been many centenarians who have been *liberal* consumers of food all their lives; again notwithstanding so eminent an authority as Sir Morrell MacKenzie to the contrary. Herodotus informs us that the early Egyptians, a primeval race, roasted joints and boiled others, but that their priests made a sanitary code and that they themselves set an example in moderation in eating and drinking.

"It is a pity that the example set by the Roman Catholics in abstaining once a week from flesh food has not been adopted as a sanitary measure. I also think Lent is beneficial, on the same ground. It comes at a season when change of diet is desirable.

"It would not be a bad idea to incorporate a sanitary code into our religion. Humanity is as perverse as it can be. Moses worked on the superstition of the Jews to keep them healthy and cleanly, hence he made dieting and frequent ablutions religious observances. Mahomet did the same.

"The food eaten should be somewhat in accordance with the climate. Among the Esquimaux, Sir John Ross informs us, the daily allowance of flesh and blubber amounts to twenty

pounds. The colder the climate the greater amount of animal food is required. One would soon faint by the way if he endeavored to sustain life on berries and beans in the North.

"The philosophy of eating should be made a study. Food containing the largest amount of phosphates is best adapted for the making of brain and bones, and to those who wish to build up their mentality and framework I would prescribe the following bill of fare, as every healthy man weighing, say 154 pounds, should have in his system at least one pound and twelve ounces of phosphates:

"BILL OF FARE FOR BRAIN WORKERS.

"BREAKFAST—Oatmeal porridge; it contains 3 per cent. of phosphates. (It is a favorite diet of the Scotch, a bony and brainy people.) Fresh herrings, 5 per cent.; ham and eggs, 4.4 per cent.; Southern corn bread, 4.1 per cent.

"LUNCH—Lobster salad, if fresh. It contains 6 per cent. of phosphates.

"DINNER—Chicken soup with barley, 3.5 per cent.; salmon, 7 per cent. (the salmon contains the largest percentage of phosphates of any of the finny tribe); game, pigeon or venison, 5 per cent.; lamb, 6.2 per cent.; beans, 3.5 per cent.; sweet potatoes, 2.9 per cent.; artichokes, 1.8 per cent.; cauliflower, 1 per cent.

"DESSERT—Custard pudding, 2.4 per cent.; figs, 3.4 per cent.; prunes, 4.5 per cent.; cheese, 7.4 per cent.; chocolate, 1.8 per cent.

"SUPPER—Never go to bed hungry. In cold weather take a Welsh rarebit. It contains 7.4 per cent. of phosphates.

"An adherence to this bill of fare will keep the system well supplied with phosphates. It should be the daily diet of aggressive editors, as it develops the brain power; it also develops the bones, thus enabling them to have the courage of their convictions.

"Muscle making? Well, a man who wishes to be in good muscular condition should have in his system (say a man weighing 154 pounds) three pounds and eight ounces of nitrates.

"BILL OF FARE—MUSCLE-MAKER.

"BREAKFAST—Southern corn mush, 39.6 per cent. nitrates; fresh salmon, 20 per cent.; mutton chops, 56 per cent.

"LUNCH—Ham sandwich, 35 per cent.

"DINNER—Mutton broth soup, 56 per cent.; salmon, 20 per cent.; venison, 20 per cent.; mutton, 56 per cent.; parsnips, 10 per cent.; turnips, 12 per cent.; potatoes, 5.6 per cent.; vermicelli, 47.5 per cent.

"DESSERT—Hominy, 39 per cent.; cheese, 20 per cent.; fruit contains very little of nitrates.

"SUPPER—Broiled bones, 56 per cent.

"Shakespeare says: 'Unquiet meals make ill digestion.' Those who wish to improve their brain, bones and muscles should not excite themselves at meals by angry discussion. The tired and jaded professional man should take a generous diet, and when serenely full he can say: 'Fate cannot harm me, I have dined to-day.'"

JOHN MORRISSEY'S THREE MONTHS' DIET.

First—Take a black draught. Any druggist will put it up. All prize-fighters take this when they begin to train for a fight.

Second—Be sure to get at least seven or eight hours of good sound sleep every night.

Third—In the morning when you first get up drink a glass of hard cider with a raw egg in it. If the cider is not to be had, then use sherry wine, but I prefer the cider. Then start out and walk briskly a couple of miles. When you come back take a sponge bath and rub dry with a coarse towel. Rub until the skin is all aglow.

Fourth—For breakfast eat a lean steak, cooked rare; also eat stale bread. Use no milk, no sugar, no butter and no potatoes, with the exception of about once a week. If you wish you can eat a roast or baked potato in the morning. Drink sparingly of tea and coffee. Tea is better.

Fifth—For dinner eat rare roast beef and stale bread. Use no potatoes or vegetables of any kind with this meal. Change the diet with an occasional mutton chop without fat.

Sixth—For supper a lean steak or mutton chop without fat. Do not eat any warm biscuit or warm bread at any time. Stick to good, wholesome stale wheat bread. Eat no pies, cakes or pastry of any kind. Use salt, pepper and all other seasonings very sparingly.

Seventh—Use no stimulants of any kind. Do not smoke. Drink sparingly of water. Do not eat berries or vegetables of any kind except, occasionally, a raw onion.

Eighth—If you feel weak in the morning before breakfast, it is likely to come from bathing; if so, it should be discontinued a few days.

WHAT TO EAT AND DRINK.

ANOTHER OPINION.

"The question of what we may eat and drink is one of anxious importance. In the beginning the command or permission included 'every green herb and every tree that beareth fruit for meat; and dominion over the beasts of the earth and the fowls of the air and the fishes that are in the sea.' A very suitable and generous provision it would seem. Man had only to walk abroad and help himself, and he seemed to do fairly well, if length of days counts for anything. Methuselah, Abraham and various other worthies were well along in years before they ceased to make demands upon their respective cooks, and there is some reason to believe that the cooking of their day was not according to the highest culinary requirements of the present. They ate and drank regardless of bacteria, for they had not heard of these discoveries that the mind of man has sought out, and so they enjoyed their food without apprehension of any dangerous effects.

"The patriarchs lived to a fabulous age (if counting the years as we count them to-day), yet there were no refrigerators, wire screens, hammocks or awnings in those days, and the climate was hot and there were insects and various pestiferous things.

"Now we have learned that the bloom on the peach is composed of bacilli, and that the water is full of typhoid germs, and yet we have indigestions, all this knowledge notwithstanding. And where our dear, ignorant forefathers ate all things indiscriminately and flourished, we have health laws and cooking schools and health foods and sanitary restrictions on the right hand, and on the left, and with them, we have nervous prostration and heart failure and stomachache. Instead of eating all things unfearingly, we eat everything with a fearful looking inward to possible disaster. We weigh and measure, we bake and boil scientifically, and yet we have nervous and neurotic diseases just as though we conducted our living on a natural basis.

"There seems to be everything in the way of that peace of mind necessary to good digestion. Speakers and writers warn us of the evil effects of tea and coffee, since these produce blindness, epilepsy and such pleasant results. And as for the water, that is to be avoided at all hazards, for we are told by an international hygienic congress that 'the main cause of bodily deterioration is from the deposit of lime and sand left by all aqueous fluids.' Another school of hygienists forbid wine and beer; then what are we to drink?

"We learn now that oysters contain so much matter that the system cannot utilize it. Canned meats are 'of little digestive value and fraught with danger to health,' and fish meat is full of bacteria—our new enemy, of whose existence science has made us aware. The real or professed scientist tells us that poison lurks in cheese, in custards, in milk, in ice cream, and in the beloved ice cream soda. Baking powder is sure death, according to the manufacturers of a rival brand; one man tells us that salt is not necessary with food; another tells us that without salt, especially in some foods, we are in danger of being poisoned by hydrocillidene, whatever that is.

"What shall we eat? If it were left to me I should say eat everything that is sound and sweet and wholesome that tastes good to you. Eat without fear of this or that before your eyes. Men and women in countless numbers have lived

good, healthful lives, thought and wrought and fought nobly for the world, who have lived on roast beef, who ate sauer-kraut and sausage, black bread and coffee, and we cannot deny that millions of Hindoos and Chinese and Japanese have done great work on a daily diet of rice.

"Worry and fear are at the root of nervous prostration and half our ills. If we could wrest ourselves from the clutches of these two tyrants, what a world this would be! As it is, we go through life afraid of almost everything. We fear it is going to rain or be too cold or be too hot; that we are going to have rheumatism or appendicitis; that this or that is going to give us dyspepsia; that the banks are going to fail or cholera come next year. *And the things that we fear and dread generally come.* It is a way they have, and it is in accord with law. We are beginning to understand this in some degree, and the sooner we think of health and prosperity and all good things, the better it will be for us. The old law 'of everything shalt thou eat,' is all right. Let us take the good things with gratitude and not with health-and-happiness-destroying fear."

The foregoing came into my hands without the knowledge of writer or paper. I am pleased to quote the sound advice. Proper physical training will put us into condition to eat anything we desire; and, with a knowledge of the nutritive principles of food, we shall desire only such food as brain and brawn can utilize.

BRAIN FOOD, HEAT-PRODUCING FOOD, MUSCLE-PRODUCING FOOD.

"The best of the common *phosphatic* or *brain foods* are lean meat, fish, cheese, whole wheat, oatmeal, almond nuts, Southern corn, beans, peas, sweet potatoes, figs and prunes.

"The best of the *carbonaceous* or *heat-producing foods* are fat, sugar, butter, rice, rye, chocolate, dates, buckwheat, Northern corn and wheat bread.

"The best of the common *nitrogenous* or *muscle-producing foods* are vermicelli, cheese, meats, Southern corn, salmon, lentils, beans and peas, *vermicelli and cheese being the best muscle-producers known.*

"N. B.—The eating of too much of the *carbonaceous* foods is the cause of ill health, poor blood and bad skin."

STILL ANOTHER AUTHORITY ON DIET.

From "Hygiene for Base Ball Players."

"Of the *nitrogenous*, or albuminoid or *waste supplying* foods, among the best are beef, mutton, fowl, cheese, eggs, milk, fish, bread.

"The best *force-producing* foods are fats, sugar and starches.

"*Fats*—Butter, lard, oil, meat fats.

"*Sugars*—Pure soft candies, rock candy, cane or table sugar, grape sugar or glucose, milk sugar or lactose.

"*Starches*—Rice, tapioca, corn starch, oatmeal, cracked wheat, sago, barley, potatoes and corn.

"The indigestible, unnutritious, or otherwise more or less hurtful articles of diet *to be avoided* are veal, pork, uncooked vegetables, pastry, pies, puddings, dumplings, tea, coffee and nuts.

"Fruits and vegetables are first-class accessory foods and should be taken in season. This is particularly true of fruit. All vegetables should be well cooked and all fruit ripe, but not over-ripe.

"The body may be compared to a locomotive, in which the iron, steel, brass, copper and general make-up of the engine corresponds with the bone, muscles, nerves, blood vessels and general tissues of the body. The metal work (the structure of the engine) wears out; so do our bones and muscles and other structures. On the engine they are replaced by new plates, bolts, screws, tubes, rods, cylinders, etc., as the occasion demands, while in the case of our bodies the wear and tear is supplied by the nitrogenous or albuminous foods, as, for instance, meat.

"Coal and wood form the force-producing food for the locomotive, as do the fats, sugar and starches for our bodies.

"To eat poor nitrogenous food is like repairing a locomotive with inferior metal or old and rusty iron, and to eat the poorer and less digestible force-producing food is like running an

engine with poor coal and wood or attempting to burn sand and mud.

"Again, the locomotive does not do the same amount of work each day, for while 300 miles are run to-day only 50 may be made to-morrow, 100 the day following and on the fourth day there may be a total rest in the round-house.

"No engineer with any sense would burn the same amount of fuel on each of these days, and yet that is exactly what we do with our bodies, for, on days when we do the least work (as, for instance, on Sundays) the largest amount of food is crammed into our stomachs.

"It is useless to carry the analogy any further, for the comparison is so simple and so apt that it cannot help but show the right way to all who will stop to think. The moral is to eat in proportion as you work, while care should be taken not to eat just before or during or just after hard mental work."

APPLES FOR SEDENTARY PEOPLE.

From the North American Practitioner.

"The remedial use of apples is worthy of notice. Chemically, the apple is composed of vegetable fibre, albumen, sugar, gum, chlorophyl, malic, gallic acid, lime and much water. Furthermore, the German analysts say that the apple contains a larger percentage of phosphorus than any other fruit, or than any vegetable.

"The phosphorus is admirably adapted for renewing the essential nervous matter (lecitin) of the brain and spinal cord. It is, perhaps, for the same reason (rudely understood) that the old Scandinavian traditions represent the apple as the food of the gods, who, when they felt themselves growing feeble and infirm, resorted to this fruit to renew their powers of body and mind.

"The acids of the apple are also of singular use for men of sedentary habits whose livers are sluggish in action, the acids serving to eliminate noxious matters from the body which, if retained, would make the brain heavy and dull, or bring about jaundice or skin eruptions and other allied troubles. Some

such experience must have led to the custom of taking apple sauce with roast pork, rich goose and other like dishes.

"The malic acid of ripe apples, either raw or cooked, will neutralize any excess of chalky matter engendered by eating too much meat. It is also a fact that such ripe fruits as the apple, the pear and the plum (when taken ripe and without sugar) diminish acidity in the stomach rather than provoke it. Their vegetable sauces and juices tend to counteract acidity."

I have tested the foregoing thoroughly and am satisfied that the apple, of all fruit, is the friend of both the brain worker and the seeker after health. To me it has seemed even more efficacious just before retiring than at any other time. I am not of those who believe that fruit is "golden in the morning and leaden at night." It is always golden. Can you fancy the typical farmer and his family going to bed on a winter's evening without the usual supply of apples? It reminds me of that beautiful word-painting of J. T. Trowbridge ("Evening at the Farm"), in which he says:

> To supper at last the farmer goes,
> The *apples* are pared, the paper read,
> The stories are told, then all to bed.

LEMONS.

One medical authority (London *Lancet*) says: "Most people know the benefit of lemonade before breakfast, but few people know that the benefit is more than doubled by taking another at night, also. The way to get the better of a bilious system without the taking of blue pills or quinine is to take the juice of one, two or three lemons (as appetite craves and judgment dictates) in as much water as makes it pleasant to drink without sugar. Do this just before retiring. In the morning on arising, or at least a half an hour before breakfast, take the juice of one lemon in a goblet of water. This will clear the system of humor and bile without any of the effects of calomel or congress water. One should not irritate the stomach by taking lemons clear. The powerful acid of the juice, when taken alone, is always most corrosive, and invariably produces inflammation if long continued; but when properly diluted so

that it does not harm nor draw the throat it does its medical work without harm, and when the stomach is clear of food it has abundant opportunity to work over the system thoroughly."

I desire to add my testimony to the foregoing, also, as in the case of the apples. Nature is very kind to us in furnishing about everything necessary to obtain or to retain health.

I found the use of lemons of special value during my seasons in the sunny Southland.

In a pitcher of cold water (not iced) I would squeeze the juice of three lemons. The benefits of this potion were two-fold—my system was not only kept in excellent condition and free from malaria, but my thirst was quenched, hence I drank less frequently and a less quantity of water, a mere sip would oft-times suffice. The less iced water one drinks the better. Iced water increases instead of diminishes thirst.

I wish to add one word in the way of caution in the use of lemons. Do not use *sugar* with the lemon; it neutralizes the intended or desired effect to be produced in the taking of the lemon; it will (with sugar) *cause* instead of *remove* acidity.

A SIMPLE DIET.

By Sir Benjamin Ward Richardson, London, Eng.

"BREAKFAST—Oatmeal porridge, eggs and toast make a good breakfast.

"DINNER—A mutton chop or a beefsteak, with a light quantity of vegetables and some fruit, makes an efficient dinner.

"SUPPER—A cup of milk (in place of tea) and whole-wheat meal porridge will suffice for supper.

"These, in my experience, form as good a diet rule as can be devised for men in active athletic work.

"The athletic life runs from 18 to 36. It is essential that the would-be athlete abstain from alcohol and tobacco, and he should know that gambling is fatal to body and mind.

"There are four essentials of success, viz., *precision*, *decision*, *presence of mind* and *endurance*. These qualities (said a noted athlete to me) will make the possessor successful in any field

he enters. Fear is the most fatal of all to the athlete's success. It paralyzes all operations. *Mental* endurance is of the utmost importance. It is a determination that you will go through a thing and that you will last till you do go through. I place *mental* endurance ahead of *physical* endurance. The athlete must sleep at least seven hours every night, and he must observe four more essentials, viz.:

"Abstinence from hurtful things.

"Regular and good habits.

"Calmness of temper.

"Laudable ambition."

AN OPINION ON DIET SOMEWHAT AT VARIANCE WITH OTHERS ON BRAIN FOOD.

"Two erroneous theories seem to be generally accepted; first, that in a warm climate fruit and vegetables are the most desirable diet; second, that physical exercises may be largely dispensed with when one lives practically in the open air. In the case of an invalid I do not speak; let him follow his doctor's directions. However, for the healthy man or woman who lives by the sweat of their *brain*, fruit and vegetables are not adequate diet. Good blood comes from the liberal eating of blood-making food and the deep breathing of pure air. Nothing can take the place of properly cooked meats. No climate can obviate the necessity of physical exercise. The sooner brain workers find out these truths the better for them. You might as well try to get blood out of a turnip or an orange by squeezing it as to try eating it for that purpose. Who ever saw a prize-fighter training on apples and potatoes?

"All this talk about *brain food* is mere twaddle. There is no brain food. Stomach food is the only food that avails any part of the system, and this food must be of a kind that fills the veins with rich, healthy blood, then the blood fills the brain. That which enriches the athlete's blood will serve the same turn for that of the literary animal.

"When a pugilist eats three or four pounds of fresh, sweet beef or mutton each day, he is not eating muscle food but blood

food, and he then wastes tissue where he wishes to improve it. If he exercises his arms most he wastes most tissue there, and there the pure blood renews it with increment. The brain-worker must do likewise. In breathing, eating and sleeping he must have reference to his blood. If his blood is rich, healthy and plentiful, it will renew his brain with interest whenever tissue or nervous energy is wasted there.

"Take sufficient bodily exercise in the open air to keep digestion perfect. Eat plenty of tender, under-done beef and mutton, fish and bread, eggs and ripe fruit (the last not oftener than once a day). Give tea and coffee the go-by."

The foregoing has very much in it, indeed, that is commendable, but one must not be misled by the statement that "there is no brain food." 'Tis true good blood is *the essential thing*, but that same good blood carries certain ingredients for certain parts of the body, each part appropriating its own; the liver never takes brain food, the brain never takes liver food, and so with the various parts of the body. If all food were "stomach food" then the stomach would exhaust the life principle and there would be nothing for any other portion of the body. The stomach is the mill that prepares the food for its customers, and these are or should be prepared to take their due allowance. In case of oatmeal, however, it has already been to mill, and it is now said by leading physicians that the stomach has nothing to do with oatmeal, not even to digest it, but that work is given to the intestines. This is surely feasible, and may account for the fact that oatmeal is so beneficial to the dyspeptic, the stomach not being taxed to digest it.

Were there but one kind of food it would be useless to speak of the three classes—phosphates, nitrates, carbonates. Yet let us not lose track of what the writer has to say about good food, good blood and pure air.

SOMETHING NEW, NOVEL, PRACTICAL CONCERNING DIET—STIMULATING THE BRAIN FOR BODILY STRENGTH.

COFFEE A PRIME FACTOR.

The influence of a regimen which stimulates the brain was shown by the report of M. Gasperin to the French Academy

upon the diet of the working population. He ascertained the usual amount of nitrogenous food in the diet of the laboring population of France, and then discovered that the Belgium miners perform the most vigorous labor, beyond the average of French miners, with much less food; even than the inmates of workhouses and the monks of La Trappe.

They have solved this problem of how to nourish themselves completely and preserve health and great vigor of muscular strength, upon a diet containing less then half of the nutritive principles of that indicated by observation in Europe.

The distinctive peculiarity of the diet of the Belgian miners is the use of a potent cerebral stimulant. They use, three times a day, half a pint or more of coffee, using no other beverage; coffee, bread and butter being the major diet.

This gives a stimulus to vitality which resists the rapid disintegration of the tissues, and by diminishing the amount of excretion they diminish the necessity for food in proportion.

In the same way, demand for food diminishes with those who live under high, heroic excitement. Kossuth, during the Hungarian war, was accustomed to take but one meal a day.

M. Gaspin also remarks: "We know how sober people are who drink coffee."

ANOTHER WRITER APTLY PUTS IT THUS: WHY IS FOOD REQUIRED?

The question seems almost absurd, so familiar is the fact, and yet the answer to it involves one of the grandest chapters in the history of science. In its simplest form it may be given in three words: *it is fuel.* We require food frequently for just the same reason that a fire requires coal frequently, and a lamp oil, because we are burning away. The air that we breathe into our lungs contains oxygen, and this oxygen combines with, or burns, the muscles or other organs of our bodies just as it does the coals in the fire. The heat produced in a man's body in the course of a day is considerable in quantity, though not very intense in quality. Taking the average, it is enough to raise five and a half gallons of water from freezing

point to boiling point, and this is about the heat that would be given out during the burning of a pound of coal. All this heat comes from slow wasting or burning of the substance of the body, so that it is evident that if we did not make up for this constant loss by eating food our organs would soon be wasted away and consumed.

A RESUME OF THE DIET CONTROVERSY.

After carefully reading the foregoing and weighing the various and conflicting opinions, to what decision can we come? Only one. Every one should be his own physician in the matter of diet.

Take, for instance, the

DRINKING OF COFFEE.

Here is one authority says "give it the go-by;" another, "avoid tea and coffee;" another, "take milk instead of tea and coffee;" another, on the contrary, conclusively proves that its effect is beneficial, a stimulus to the cerebellum, a preventive of disintegration.

My own experience and observation has led me to the decision in favor of coffee, and this decision has been reached after many years and various forms of experiment.

This experience, briefly stated, may be of interest to those who are seeking the best means of securing and retaining health; health of body, health of mind.

First—For two years I used no liquid except cold water, drinking freely at my meals, as well as at all times when thirsty. I was in perfect health, but, being of a plethoric nature, the result was an unusual flushed condition and appearance of the face, in consequence of the blood being forced, to an unusual and unnatural degree, to the capillaries of the face.

Second—For another prolonged season I drank nothing whatever at my meals. I found this plan most admirable, as far as digestion was concerned, as all food was so thoroughly masticated that the salivary glands performed their function as nature intended. But, alas, there was a drawback to this method. I drank more than the usual amount of water between

meals, especially during the summer, whereas, when I drank coffee, I drank but little water between meals.

Being obliged to sample all kinds of water (traveling about ten thousand miles each year during the lecture season), I soon gave up the cherished idea of perfect digestion by the non-drinking habit during meals.

Third—I again betook myself to my cups (coffee cups). Oh, how good it tasted! What a delicious aroma! How did I ever give it up! Wait, and you shall know *how* and *why* and all the rest. My experience was that of thousands of men and women (coffee drinkers) of the present day. In the course of a few weeks or months I heard from the coffee in the way of a bilious attack; the liver and I had a tussle, but as I was of unusual strength, no ill effects came, yet I was obliged to compromise with the liver by a letting up on the coffee a few days (removing the cause), and then all was well. Of course, the same cause again continued would produce a like effect, consequently a recurrence of the disorder was felt at almost regular intervals.

Fourth—I substituted milk, both hot and cold, but the liver said if you knew whence that came, what it contains, the *hands* through which it has passed, you wouldn't abuse me by asking me to filter that three times a day; no, you wouldn't.

And so I didn't. I had but little trouble with the hot milk, but a *little* was more than I wanted. The drinking of milk, however, gave me not only trouble but, I am thankful to say, gave me a thought of no little import. I acted upon it.

Fifth (*and last*)—I solved the problem. The difficulty was not with the coffee and my liver, but with the coffee and the cream; *i. e.*, cream on the bill of fare. I discovered that the caffein and the milk had no affinity for each other. The combination forms an indigestible substance against which the stomach rebels and a leathery-like substance that puts the liver to the severest test. Therefore, I resolved to try the coffee without the cream. Eureka! The effect has been perfectly satisfactory to my stomach, to my liver; in fact, to my entire system, to the mental as well as to the physical organism.

By taking one cup of coffee (without cream) at each meal—not washing down the food—I find that I require but little water at or between meals, quite an item to any one whose tendency is to corpulency.

It is said that the body requires 72 ounces of water daily (35 ounces in the food material and 37 ounces as drink).

I always take a glass of water in the morning before breakfast, another at night before retiring, and always on awakening from my siesta, my afternoon nap of fifteen minutes; this is the little sleep while sitting, "Sleeping at Will," as I term it elsewhere in this volume.

DRINKING WATER.

By Dr. Leuf.

"A goblet of water taken before breakfast does several things.

"*First*—It passes through the stomach into the small intestines in a continuous and uninterrupted flow.

"*Second*—It partly distends the stomach, stretching and to some extent obliterating the rugœ.

"*Third*—It thins and washes out into the food passage most of the tenacious mucus.

"*Fourth*—It increases the fullness of the capillaries of the stomach; directly, if the water is warm; indirectly, in a reactionary way, if the water is cold.

"*Fifth*—It causes peristalsis of the whole alimentary canal, wakes it up and gives it a morning's exercise and washing.

"The beneficial effects of a drink of water before breakfast may account for the desire for water at this time of the day, particularly on arising. How often when we are hungry (when the stomach is tubular and filled with mucus) we find that we desire a drink before beginning to eat.

"Moderately cold water taken into the stomach chills locally; it stimulates to contraction and produces a reaction. A warm, healthy glow succeeds the contraction due to the cold. The clean and hyperæmic mucus membrane is in excellent

condition to receive food which now comes in direct contact with the bare gastric wall.

"The reflexes act to best advantage; a copious flow of digestive juice is the result; and the food, not being covered with mucus, digestion is easy and rapid, for it takes place under the most favorable conditions and in a minimum time.

"The following is a brief summary of the major points I have sought to bring out:

"*First*—The position of the stomach is more nearly vertical than horizontal.

"*Second*—An empty stomach, if in good tone, is always tubular.

"*Third*—A tubular stomach should be the rule on rising.

"*Fourth*—Non-irritating liquids pass directly through the tubular stomach.

"*Fifth*—They do likewise if the stomach contains food, but in such cases the liquids pass along the lesser curvature.

"*Sixth*—The morning mucus contained in the stomach hinders or retards digestion.

"*Seventh*—Water drank before meals dilutes and washes out this mucus, stimulates the gastro-enteric tract to peristalsis, and causes hypergemia of its lining membrane, thus greatly aiding digestion as well as elimination.

"*Eighth*—*Cold* water should be used by those who have the power to react; *warm* or *hot* water by others.

"*Ninth*—Salt added to the water is very beneficial in preventing the formation of unabsorbable parapeptone.

"*Tenth*—It is perfectly proper to drink water before, during and after meals."

OPINIONS DIFFER—COLD DRINKS.

Dr. C. Wesley Emerson says: "Neve drink milk when it is cold. *Cold* drink of *any* kind should never be taken *with* meals, nor within a *half an hour before* or in less than an *hour after meals*.

"The gastric juice ceases to flow when the temperature of the stomach is below 98° Fahrenheit."

Here are two opinions diametrically opposed. The former stipulates certain conditions under which moderately cold water may be taken with impunity; in fact, with excellent results; while the latter believes it to be wholly detrimental under all conditions. Both cannot be right. How shall we decide? I can testify to the correctness of the former, especially in the use of cold water before meals, or even during or immediately after. Dr. Emerson is wrong in not making a distinction between the stomach that has the power to react, and the weak stomach that needs the warm or hot water, as spoken of by Dr. Leuf.

The strong and well-conditioned stomach will, by its reaction, bring about the desired temperature of 98° Fahrenheit.

The same principle applies to bathing. With persons with low vitality a cold-water bath might prove not only detrimental but fatal; but with one of sufficient vitality, the best of results are obtained. As with the body, so with the stomach; it depends upon one's vitality. Again, I say, each one should be his own physician.

NUTRITION.

I think it is perfectly safe to say that not only a majority, but a large majority of persons have little or no knowledge of the nutritious principles of food, and fewer still who know how the food nourishes the body.

More than half the ills that flesh is heir to would disappear if the knowledge were more general, or I should say, perhaps, if that knowledge were made practical. Theoretical knowledge of itself counts for little. Were it otherwise, the theoretical knowledge of the effect of stimulants, narcotics, tobacco, etc., that is now possessed by the students of the public schools would, of itself, save thousands every year from an untimely grave.

One day, in the Smithsonian Institution, of Washington, D. C., my attention was arrested by a number of placards in

one of the cases. On these were tabulated the various nutrients and how they are used by the body.

I was so pleased by the unique arrangement and concentrated information that I was not at rest until I had obtained a copy from the physician who placed them there.

I herewith present the tables hoping that the reader may find them as interesting and instructive as I did.

HOW FOOD NOURISHES THE BODY.

Food supplies the wants of our bodies in four ways:

Food Furnishes:
1. The materials of which the body is made.
2. The materials to repair the waste of the body:

Food is consumed in the Body:
3. To produce heat to keep it warm.
4. To produce muscular and intellectual strength.

HOW THESE NUTRIENTS ARE USED IN THE BODY.

The Protein
- forms the basis of blood, muscle, sinew, bone, skin, etc.
- is changed into fats and carbohydrates.
- is consumed for fuel.

The Fats
- are stored in the body as fat.
- are consumed for fuel.

The Carbohydrates
- are changed into fat.
- are consumed for fuel.

The protein, fats and carbohydrates all furnish warmth and strength, but *protein* alone forms the basis of blood, muscle, sinew, etc.

Accordingly, since the protein can do for us what the others do, and has, besides, a duty of its own which the others cannot perform, it is the most important of the nutrients. Protein is, also, the most costly of the food ingredients.

A DAY'S FOOD AND HOW IT IS USED—DAILY INCOME AND EXPENDITURE OF THE HUMAN BODY.

The body receives food, drink and oxygen, which constitute its *income*. Part of this material is transposed into flesh, fat, bone and other tissue of the body. The remainder, together

with the tissue worn out by use is transformed into urea, carbonic acid, water, etc. These products are given off from the body, and constitute its *expenditure*.

DAILY INCOME.

It has been estimated that a man doing moderate work, to keep his body well nourished, requires about the equivalents of the following nutritive substances (nutrients) and water:

Nutrients and Water in Food for a Day.

Protein,	4.2 ounces.
Fats,	2.0 ounces.
Carbohydrates,	17.6 ounces.
Mineral matters,	0.8 ounces.
Water in food and drink,	71.4 ounces.
	96 ounces=6 pounds.

These substances are contained in the following food materials, which would, therefore, suffice for a day's nourishment:

Food Ration for a Day.

Beefsteak, lean and free from all bone,	8 ounces.
Bread,	20 ounces.
Potatoes,	30 ounces.
Butter,	1 ounce.
Water,	37 ounces.
	96 ounces.

Thus we have 96 ounces, or 6 pounds.

With the foregoing nutrients about 30 ounces of oxygen would be needed during the twenty-four hours. This is supplied by the air inhaled through the lungs. The food, drink and oxygen thus taken into the body constitute the income.

DAILY EXPENDITURE.

A small part of the food passes through the body *undigested*. Most of it is digested, taken into the blood and distributed through the body, where a portion is used to build up and repair the muscles, fat, bones and other tissues which are being constantly worn out by use. The remainder unites with the inhaled oxygen, produces heat and strength, and is, at the same time, changed to urea, carbonic acid and water. The

worn out portions of the tissues are changed into the same substances. The urea is given off by the kidneys; the carbonic acid by the lungs and skin, and the water by the kidneys, lungs and skin. Since the tissues are made up of the food, practically all of the digested protein, fats and carbohydrates leave the body finally as urea, carbonic acid and water.

Materials Produced from a Day's Ration.

Urea,	1.2 ounces.
Carbonic Acid,	38.8 ounces.
Water formed in body,	12.7 ounces.
Water from food and drink,	71.4 ounces.
Mineral matter (digested),	.7 ounces.
Undigested matter,	1.4 ounces.
	126.2 ounces.

The daily balance will thus be:

Income.	Ounces.	Expenditure.	Ounces.
Protein,	4.2	Urea,	1.2
Fats,	2.0	Carbonic acid,	38.8
Carbohydrates,	17.6	Water,	84.1
Mineral matters,	0.8	Mineral matter (digested),	0.7
Water of food and drink,	71.4	Undigested matter,	1.4
Oxygen,	30.2		
Total Income,	126.2	Total Expenditure,	126.2

Thus we have the three important items:

First—A day's ration.

Second—The materials that make up a day's ration.

Third—The materials of a day's expenditure.

A day's ration is intended to indicate the quantity of different foods used together required daily to maintain the body without loss or gain of flesh or fat, while performing a moderate amount of work.

The quantities of the different nutrients required are:

Protein compounds, known as flesh-formers, such as the lean part of meat and gluten of wheat,	4.2 ounces
Fats, such sa butter, meat, fat and the oily matters of wheat,	2.0 ounces
Carbohydrates, such as starch and sugar,	17.6 ounces
	23.8 ounces

These quantities may be supplied by different combinations of foods, affording great or less variety in diet, as may be seen from the two rations in the following table:

RATION NO. 1.

Food Materials.		Nutritive Ingredients in Food Materials.		
Kinds.	Amounts.	Protein.	Fats.	Carbohydrates.
Beefsteak ...	8.0 ounces	1.9 ounces	.7 ounces	— ounces
White bread.	20.0 ounces	1.8 ounces	.4 ounces	11.1 ounces
Potatoes	30.0 ounces	6 ounces	– ounces	6.5 ounces
Butter.....	1.0 ounces	— ounces	.9 ounces	— ounces
Total.....	59.0 ounces	4.3 ounces	2 ounces	17.6 ounces

RATION NO. 2.

Beefsteak ...	8.0 ounces	1.9 ounces	.7 ounces	— ounces
Wheat bread.	16.0 ounces	1.4 ounces	.3 ounces	8.9 ounces
Potatoes	32.0 ounces	.6 ounces	– ounces	7.0 ounces
Cabbage	6.0 ounces	.1 ounces	– ounces	.4 ounces
Milk.....	4.0 ounces	.1 ounces	.1 ounces	.2 ounces
Butter.....	1.0 ounces	— ounces	.9 ounces	— ounces
Sugar.....	1.0 ounces	— ounces	– ounces	1.0 ounces
Total.....	68 ounces	4.1 ounces	2 ounces	17.5 ounces

DAILY INCOME OF THE HUMAN BODY—CONSTITUENTS OF A DAY'S RATIONS—BEEFSTEAK OF A DAY'S RATION=8 OUNCES.

The principal nutrients of meat are protein and fat. The composition of a round steak of beef, free from bone, is as follows:

Nutrients.

Protein, chiefly myosin and syntonin,	1.9 ounces.
Fats, ...	0.7 ounces.
Mineral matters, ...	0.1 ounces.
Water, ...	5.3 ounces.
	8 ounces.

POTATOES OF A DAY'S RATION=30 OUNCES.

The principal nutrients of potatoes are carbohydrates (mostly starch), the protein being even smaller than in bread.

Nutrients.

Protein,	0.6 ounces.
Fat (oily matters),	0.1 ounces.
Carbohydrates,	6.5 ounces.
Mineral matters,	0.3 ounces.
Water,	22.5 ounces.
	30 ounces.

BREAD OF A DAY'S RATION=20 OUNCES.

The principal nutrients of bread are carbohydrates (starch and sugar). The composition of wheat bread of good quality is as follows:

Nutrients.

Protein (gluten),	1.8 ounces.
Fat (oily matters),	0.4 ounces.
Carbohydrates,	11.1 ounces.
Mineral matters,	0.2 ounces.
Water,	6.5 ounces.
	20 ounces.

In comparing the analyses of bread and potatoes with reference to their nutritive qualities, it should be observed that the quantity of water in potatoes is more than double that in bread.

Thirty ounces of potatoes is more than would ordinarily be eaten in one day, since an ordinary diet would include a greater variety of food than the ration represented.

BUTTER OF A DAY'S RATION=1 OUNCE.

The nutritive value of butter is due to the fats it contains.

Nutrients.

Fats,	0.9 ounces.
Water and salt,	0.1 ounces.
	1 ounce.

WATER OF A DAY'S RATION=37 OUNCES.

This quantity represents the water required in one day in addition to that contained in the other articles of food included in the rations shown.

The quantity of water in the other constituents of Ration No. 1 is about 35 ounces, composing one-third of the weight of bread and three-fourths of the weight of potatoes and meat.

Assuming the daily requirement to be 72 ounces (4½ pounds), 37 ounces of this amount would be required for drink.

PROTEIN OF DAILY INCOME=4.2 OUNCES.

Protein is the name applied to various nitrogenized compounds derived from vegetables and animal foods, including albumenoids, gelatinoids, etc.

Owing to their peculiar use they are known as the *flesh-formers*. The quantity required each day is 4.2 ounces.

Average Composition of Proteids.

	In 100 Parts.
Carbon,	53.0
Hydrogen,	7.0
Oxygen, etc.,	24.0
Nitrogen,	16.0
	100

The protein compounds, including albumen of eggs, casein (curd) of milk, fibrin of blood, myosin of muscle, geletin of bone and sinews, gluten of wheat and other like compounds, are the only constituents of food that form the flesh of the body. They are also transformed into fats and carbohydrates, and are consumed to yield heat to keep the body warm, and muscular force to do its work. In thus contributing to the nourishment of the body they are broken up into urea, carbonic acid and water; all of which are excreted.

CARBOHYDRATES OF DAILY INCOME=17.6 OUNCES.

Carbohydrates are compounds of carbon, hydrogen and oxygen, derived mostly from vegetable foods, including sugars, starch, dextrine, glycogen, etc.

Average Composition of Carbohydrates.

	In 100 Parts.
Carbon,	44.0
Hydrogen,	6.0
Oxygen,	50.0
	100

The carbohydrates are transformed into fat in the body, but they chiefly furnish fuel to produce heat and muscular energy, being converted into carbonic acid and water.

FAT OF DAILY INCOME—2 OUNCES.

The quantity of fat shown represents the amount required in the food each day, which is partly supplied by the butter used, and partly by the oily constituents of vegetable products and meat fats.

Average Composition of Fats.

	In 100 Parts.
Carbon,	76.5
Oxygen,	12.0
Hydrogen,	11.5
	100

Some of the fat taken with the food is stored in the body. The remainder, with some of the body-fat, is used as fuel to produce heat, being transformed into carbonic acid and water.

WATER OF DAILY INCOME—4½ POUNDS.

This quantity includes the total amount of water required each day, which is partly furnished as a constituent of the food and partly used as drink.

Quantity in the food,	35 ounces.
Quantity used as drink,	37 ounces.
	72 ounces.

OXYGEN OF DAILY INCOME — 30.2 OUNCES.

The total quantity of this gas (30.2 ounces) is 159 gallons. The quantity shown is only one-hundrdth of that amount, or three-tenths of an ounce. This oxygen is obtained from the air, one-fifth of which is oxygen.

The oxygen is taken into the lungs and brought in contact with the blood, by which a portion is dissolved and distributed through the body. It is thus brought in contact with the digested food and with the tissue in various parts of the body, and combines with the carbon and hydrogen, forming carbonic acid and water, thus generating heat and muscular energy.

MINERAL MATTERS OF DAILY INCOME—0.8 OUNCES.

The mineral matters, consisting of common salt, phosphates of potassium and sodium, and various other compounds, form a small but *important* ingredient of blood.

Pound Loaf of Bread.

The average composition of wheat bread is:

Water,	5.2 ounces.
Protein (gluten, albumen, etc.),	1.4 ounces.
Fats (oily matters),	0.3 ounces.
Carbohydrates (chiefly starch),	8.9 ounces.
Mineral salts,	0.2 ounces.
	16 ounces.

I am quite sure that the foregoing tables of daily food income and expenditure will be of interest, and that the result of the knowledge gained will create a desire for more general information concerning the *processes* of nutrition; hence I give, herewith, two authorities on this interesting subject. Both contain substantially the same thought, but it is interesting to note the different methods of expression.

PROCESSES OF NUTRITION.

Dr. Wm. Hammond.

"The law of nutrition depends upon the fact that fluids can pass through a membrane. All nutrition depends upon this law.

"The fluid reduced to a semi-fluid condition passes into the intestines and the liquid portions pass through the membraneous walls of the blood vessels supplying the intestines, and thus nutrition takes place; the blood receiving the solution of the food we have eaten. Some of the solution enters the blood by a larger channel, but the process of nutrition everywhere throughout the body depends upon the same law. The blood carries to every organ and to every portion of the body those substances which are required for its nutrition.

"Organic beings possess the power of assimilating from the nutritious matters that they absorb, the peculiar pabulum which each organ of the body demands for its development and sustenance.

"The brain, for instance, selects that part which it requires; the heart, the material necessary for its growth and preservation; the same with the liver, the lungs, the muscles and the various other organs of the body

"No mistake is ever committed. The brain never takes liver nutriment, nor the liver brain nutriment, but each selects that which it requires. There are, however, diseased conditions of the various organs, in which the power is lost or impaired and, as a consequence, disturbance of function or even death itself is the result.

"The brain is well supplied with blood vessels, but its activity is greater during working moments. In sleep, the circulation is diminished. Nutrition continues during sleep or waking moments. Thought requires supply just as much as motion of muscles. Action, whether of thought or organic life, results in the consumption of tissue. The tissue consumed must be replaced by those substances required for normal or healthful support.

"If we give the brain improper food, either anæmia must result or the other organs must supply the demand at their own cost.

"The student denying himself sufficient food, first becomes weak in body, until, at last, if the nervous system gives way from want of sufficient food and suitable nutriment, serious systemic disturbances result.

"The muscles require certain substances for *their* nutrition, just as the brain and other portions of the nervous system appropriate from the blood channels the substance *they* require.

"The popular idea fails to recognize this fact, and the necessity for a sufficient blood circulation is lost sight of or forgotten. We meet with people every day who are ignorant of the necessity for a liberal blood supply. They do not know that every organ requires a certain amount of special nutrition. Their *idea of eating is to gratify the appetite, not to replenish the system.*"

PROCESSES OF NUTRITION.

J. S. Loveland.

"Food taken into the mouth is masticated by the teeth and its comminution assisted by the saliva. On being conveyed to the stomach it is mixed with the gastric juice secreted by the stomach. After being rolled over and churned awhile in the

stomach, so as to more completely separate the particles and effect chemical changes, it passes through the pyloric orifice into the first of the small intestines, where it soon meets another fluid (the bile from the liver), an indispensable agent in digestion. Farther on, the pancreatic fluid completes the process and prepares the digested aliment to be absorbed by the secreting vessels, and through the left subclavian vein emptied into the general blood circulation. We can then follow it through the heart and lungs back to the heart again and through all parts of the body, furnishing the means to build up the waste places of this wondrous Zion.

"Of the food taken, quite a portion is waste material, which is rejected from the system through the intestines, one of the excretory agencies.

"The nose, as well as the mouth, is one of the apertures through which we receive food, for *air* is as real food as *beef-steak*, the lungs being stomach for air food.

"Now, in the many processes referred to there is continuous chemical formation, action and reaction. The liver secretes its special agent, as does the pancreas and the salivary glands, all indispensable agents in the process of digestion.

"Trace this process all through, and anyone can see that harmony of action in the living machine is dependent upon many, very many, contingencies. There must be sufficiency of food, both solid and air, and the material must be good or the perfection of the process will be impaired, and impairment of the process will sooner or later produce injury to the organs.

"I have referred to but *one* of the excretory organs, the *skin* is another. When the skin is in a healthy condition it carries off several pounds of waste matter every day. The lungs secrete carbon from the blood and expel it into the air. The kidneys eliminate a large amount of waste and poisonous material. Any failure on the part of any of these organs to perform their appropriate functions will result in a poison being left in the organism.

"All positive disease is the result of some specific poison in the animal organism. This poison may be created by chemi-

cal action in the system ; it may be inhaled from the atmosphere or inoculated like the sting of a serpent. The possibility of cure depends upon the power of the organs to eliminate the poison."

This last clause, to my thinking, strikes the very keynote to the *needs* of thorough and intelligent physical training. If one keeps up his vitality and thus avoids the negative condition of the body, disease cannot readily lay hold upon him. In the very face of these many germs of disease—even la grippe—one in good vital condition can say, and confidently say: "I defy you to do me harm. I have no fear of you, for I have no congenial soil upon which you may lodge and develop."

To better impress my belief, I cite an eminent authority on this subject.

GERMS OF DISEASE.

Dr. H. C. Stickney.

"La grippe and cholera are due to the presence of a microbe. Medical men are striving to destroy this micro-organism by means of powerful drugs. Too often the patient and the microbe meet a common fate.

"A perfectly healthy individual need have no fear of microbes. If the system is in proper condition the microbes will keep their proper place and do no damage. It is only when the constitution is weakened by unhygienic habits that the microbe becomes dangerous. They are a *consequence* rather than a *cause* of disease. Were it possible to find a perfectly healthy individual, that person could walk unharmed amid contagious diseases. He would be invulnerable to smallpox, scarlet fever, diphtheria, la grippe, etc.

"False experiments lead to false conclusions. In many of the so-called physiological laboratories (where everthing is studied except physiology), pathological or diseased conditions are induced in the animals experimented upon, and these results are made the basis for treating disease.

"A healthy animal may, with impunity, eat the tubercle bacili, drink them, breathe them, sleep among them and escape tuberculosis. It is only when pathological conditions are

induced, the laws of nature violated, *the vitality weakened*, that tuberculosis results from the introduction of the bacili.

"In full accord with this thought, Dr. F. R. Eversole claims that people with healthy stomachs need have no fear of cholera. The secretions of a healthy subject will kill the germs ere they can reach the blood. Physicians have proved by experiment that the cholera germ may be fed to a horse or rabbit with impunity, but if hypodermically introduced into the same animals, cholera will ensue."

DISEASES PECULIAR TO CHILDREN.

Dr. Rufus K. Noyes, in "Living Issues," touches a chord that should find a response in the heart of every parent. It may have much to do in uprooting many false notions everywhere prevalent.

"The impression held by many intelligent people that children must have scarlet fever, measles, mumps, whooping cough and the like, and, that these being inevitable, the sooner they have them and are done with it the better, is not only false, but is a dangerous belief as well. In the first place, there is no more necessity for a child to have scarlet fever than for an adult to have typhoid fever. Both are preventable, and they are preventable by hygiene and by careful, healthful and intelligent living. In the second place, the longer we shield the child from these diseases, the less likely will they prove fatal; that is to say, with every year added to the age of the child, the liability to these diseases becomes less, while, at the same time, the ability to successfully overcome them (should they occur) becomes greater.

"Knowing, as we do, that the majority of children die during the first years of their existence, and that they die of diseases that are now regarded as preventable, it becomes our very great duty to study and think and learn all we can of physiology, biology, sanitation and hygiene, for it is this kind of knowledge that we seek for the secret of health and longevity, as well as the secret whereby diseases are escaped."

The foregoing is surely wholesome doctrine, if from no

other cause than that arising from the fact that "prevention is better than cure."

The coming physician is he who gives advice and prevents, rather than he who gives medicine and cures. The latter is and probably always will be essential, for people are and always will be careless, negligent, foolish, but by and by that class (the latter) will be in the minority.

DIGESTION.

Not only is it well to be more or less familiar with the laws of hygiene in order to prevent disease; with facts concerning the amount and kind of food needed to produce the best results, and with the various processes of nutrition, but to guard with zealous care the digestive apparatus. Not only should we possess the knowledge, but we should make an intelligent use thereof.

Do not engage in any kind of mental or physical work directly after a hearty meal, for in so doing the blood is drawn to the active portions, thus depriving the stomach of the needed supply for perfect digestion. *Do not eat when tired.*

Keep the bowels open, for if this is not done a part of the contents are absorbed into the blood and act as poison upon the brain and the whole nervous system, and this deranges digestion. The same poison makes a man's mind dull and heavy if he is constipated or costive.

A noted French physician recently tested the requirements of the stomach as regards digestion. He conclusively proved that comparative rest following a hearty meal is positively essential for perfect digestion.

He secured two dogs of as nearly the same age and condition as it was possible for him to find. After feeding them a hearty meal, the same amount to each, he shut one of them in a room, but took the other to follow his buggy for a two hours' jaunt.

When he returned to his home he chloroformed both dogs and immediately examined the stomach of each.

In the stomach of the dog left in the house not a particle of the food remained, whereas, in the stomach of the dog that

followed the buggy, all the food remained as it had entered, thus showing perfect digestion in the former as a result of rest, and non-digestion in the latter in consequence of over-activity.

I wish also to impress the fact that, as a promoter of good digestion, we should cultivate agreeableness at the table. Avoid any unpleasantness there—avoid it *anywhere*. It is a promoter of indigestion, and indigestion is a promoter of enemies, quarrels and sometimes of crime.

TIME REQUIRED FOR DIGESTING FOOD.

Food.	How Cooked.	H. M.
Apples, sour, hard	Raw	2.50
Apples, sweet, mellow	Raw	1.30
Bass, striped	Broiled	3.00
Beans, pod	Boiled	2.30
Beans and green corn	Boiled	3.45
Beef	Fried	4.00
Beefsteak	Broiled	3.00
Beef, fresh, lean, dry	Roasted	3.30
Beef, fresh, lean, rare	Roasted	3.00
Beets	Boiled	3.45
Bread, corn	Baked	3.15
Bread, wheat, fresh	Baked	1.30
Cabbage	Raw	2.30
Cabbage, with vinegar	Raw	2.00
Cabbage	Boiled	4.30
Carrot, orange	Boiled	3.13
Catfish	Fried	3.30
Cheese, old, strong	Raw	3.30
Chicken, full grown	Fricasseed	2.45
Codfish, cured dry	Boiled	2.00
Custard	Baked	2.45
Duck, tame	Roasted	4.00
Duck, wild	Roasted	4.30
Eggs, fresh	Raw	2.00
Eggs, fresh	Scrambled	1.30
Eggs, fresh	Roasted	2.15
Eggs, fresh	Soft boiled	3.00
Eggs, fresh	Hard boiled	3.30
Eggs, fresh	Fried	3.30
Fowls, domestic	Roasted	4.00
Hashed meat and vegetables	Warmed	2.30
Lamb, fresh	Broiled	2.30
Milk	Boiled	2.00
Milk	Raw	2.15
Mutton, fresh	Broiled	3.00
Oysters, fresh	Raw	2.55
Oysters, fresh	Roasted	3.15
Oysters, fresh	Stewed	3.30
Parsnips	Boiled	2.30
Pork, steak	Broiled	3.15
Pork, fat and lean	Roasted	5.15
Pork, recently salted	Stewed	3.00

Food.	How Cooked.	H.M.
Pork, recently salted	Fried	4.15
Potatoes, Irish	Baked	2.30
Potatoes, Irish	Boiled	3.30
Salmon, salted	Boiled	4.00
Sausages, fresh	Broiled	3.20
Soup, bean	Boiled	3.00
Soup, chicken	Boiled	3.00
Soup, mutton	Boiled	3.30
Soup, beef, vegetables	Boiled	4.00
Trout, salmon, fresh	Boiled	1.30
Turkey, domesticated	Roasted	2.30
Veal, fresh	Boiled	4.00
Veal, fresh	Fried	4.30

WATER, MUSCLE, HEAT AND FAT PROPERTIES OF FOOD.

100 Parts of Each.	Water, etc.	Muscle Making.	Heat and Fat Making.
Apples	84.0	5.0	10.0
Barley	14.0	15.0	68.8
Beans	14.8	24.0	57.7
Beef	50.0	15.0	30.0
Buckwheat	14.2	8.6	75.4
Butter			All
Cabbage	90.0	4.0	5.0
Cheese	10.0	65.0	19.0
Chicken	46.0	18.0	32.0
Corn	14.0	12.0	73.0
Cucumbers	97.0	1.5	1.0
Eggs, white of	53.0	17.0	None
Eggs, yolk of	79.0	15.0	27.0
Lamb	50.5	11.0	35.0
Milk—cow's	86.0	5.0	8.0
Mutton	44.0	12.5	40.0
Oats	13.6	17.0	66.4
Peas	14.0	23.4	60.0
Pork	38.5	10.0	50.0
Potatoes	75.2	1.4	22.5
Rice	13.5	6.5	79.5
Turnips	94.4	1.1	4.0
Veal	68.5	10.1	16.5
Wheat	14.0	14.6	69.4

DIETING.

Do I believe in it? On general principles, no. Again and again, I say, every one should be his own physician.

In certain ailments dieting may prove beneficial. If one is troubled with indigestion, dieting will aid nature in securing the necessary equilibrium; but if one is troubled with an undue accumulation of fat, dieting will not remove, although it may prevent further accumulation. Exercise should be taken to burn out the adipose tissue; local treatment is necessary, in a great degree, even to do this.

If one attempts to remove undue obesity by dieting, he must make an heroic effort, an effort that brings him well-nigh the point of starvation; even then he must face the fact that the same cause will produce the same effect. Articles of diet that make fat are needed, but the fat should be consumed by the body instead of allowing it to accumulate. About two ounces are needed daily as fuel to produce heat. Some of this is stored in the body; the remainder, with some of the body fat, after being used as fuel to produce heat, is transformed into carbonic acid and water.

If, by dieting, one means *intelligent* eating, then, by all odds, I am in favor of dieting; not so much that such and such food does not agree with one, but that such and such food has no nutritive power. 'Twere much better to get the system in such a condition—by proper physical exercise—that all good, wholesome food agrees with it, and then eat only such food.

It should also be observed that the same articles of diet do not have the same effect on all persons. For instance, fat-producing foods may cause one person to grow very fleshy, while another person, though desirous of accumulating flesh, may not increase one pound.

'Twas only a short time ago that an old lady said to me: "Well, if butter and sugar and sweet things make me fat, why don't they make my husband fat? We've been sitting at the same table for forty years; our tastes are alike, so we both eat the same kind of food; but I weigh 240 pounds and he weighs only 130 pounds. Guess it isn't in what we eat, do you think it is?"

No; long ago I was convinced it was a matter of constitution. This is especially noticeable in the result of drinking water. It has been recommended time and again as a flesh-producer. Is it? It depends. Depends on what? On the constitution of the person. I have known several cases where one's weight has jumped from 140 pounds to 200 pounds and over, by drinking freely (too freely) of water. I have known many more cases where persons weighing from 90 to 100 pounds have sighed and sighed in vain for an increase of avordupois, and as

a means thereto, have drank enough water to float the Great Eastern.

All the water of Niagara would not make some persons fleshy. One who is inclined to corpulency is likely to become more so by drinking too freely of water, or eating an excess of foods containing water.

The system requires 4½ pounds daily; about 35 ounces in the food material and 37 ounces in drink; 4½ pounds being about 4½ pints, according to the old lady's calculation that "a pint's a pound, the year round."

Proper exercise will reduce one's weight; proper exercise will *increase* one's weight.

MILK.

Milk of the cow is not natural food for man or woman at any stage, surely not at adult age. Its *regular* use makes strong people fat and weak ones bilious and costive.

The only time that milk contains its full nutritive power is while perfectly fresh and warm from the cow; not only warm, for this it may be for several moments, but it should be 98 degrees Fahrenheit, the same temperature as that required by the stomach for perfect digestion. But this degree of heat exists only at the time it is received. Within an incredibly short time the nutritive principle is lost, never to be regained. Heating the milk may bring back the degree of heat, but it cannot bring back its degree of strength, yet there is much to be gained at times from the drinking of *hot* milk, not regularly, but as some special occasion may demand, such as insomnia, for instance.

ALCOHOLIC DRINKS.

Dr. Leuf.

"Almost all alcoholic drinks are nine-tenths *carbon*, having so little *nitrogen* that they cannot add one particle of muscular strength to the system.

"A man may *feel* stronger after taking a drink of spirits, but it is *artificial* strength, for when the effect passes away it leaves him in a weaker state.

"It may be set down as a safe rule that those substances which are not essential to the body as a food or protection are more or less pernicious and of little use. Alcohol and malt beverages are unnecessary and decidedly harmful, except when intelligently and sparingly employed in certain forms of disease.

"The liver is much affected by alcoholic drinks. The blood carries the alcohol directly to it from the stomach. It is at first irritated, then congested and inflamed. During this time it enlarges, causing tenderness to the right side under the ribs, as well as somewhat in front, and because of its enlargement it presses upon the stomach and causes that organ to feel uncomfortable if it contains much food. At a subsequent stage the liver shrinks and becomes hard. In this way it constricts the blood vessels passing through it and prevents the free passage of blood from the stomach and intestines to the heart. The blood is then dammed back into the stomach and into the large and small intestines, pancreas and spleen. Hemorrhoids result; eventually there is dropsy, both of the feet and the belly, and, at last, death results from a failure of the mechanism of the body to work in harmony. Add to all this the fact that the higher, or liver, digestion is almost destroyed as soon as the liver begins to shrink.

"The effect of alcohol on the liver alone is enough to deter anyone, even the most foolhardy, from persisting in so pernicious a habit, unless he be a veritable slave.

"While the bad effects of *excessive* drinking are well known to the medical profession, the evil results of *moderate* drinking are comparatively unknown.

"The mortality or *death rate* among *moderate* drinkers is *six times* as great as among total *abstainers*. These little nippings keep the blood vessels of the brain under constant tension, as they do all other parts of the body, but the brain being the more sensitive to these conditions, it is one of the easiest to give way and deteriorate, often enough to the extent of imbecility, paresis and paralysis. It also prevents the proper oxydation or burning of the tissues of the body, and in that way soon leads to diminished strength, poor blood and the

retention of broken-down, poisonous substances that should be eliminated as soon as formed."

There is no denying the fact that the athlete—the one who, under all circumstances, should be cool-headed—should not indulge in intoxicants. There can be no sensible argument in favor of their regular use.

'Tis true men have been known to pursue laborious employment at long hours, drink whiskey, use tobacco and opium every day, and yet live to 80, 90 and even 100 and more years of age with little or no sickness, but with one such instance thousands perish prematurely. *No rule can be established on exceptional instances.* It can be truly said that *intemperance* in *any* form is destructive of health, happiness and morals.

While dwelling upon those things that are detrimental to the highest and best development of the human system and especially to that *care of the body* which is so essential to the athlete, I shall ask your attention to, and most careful consideration of a subject which I shall endeavor to present without bias and without trespassing upon individual rights. I desire to state *facts* as regards the effect of *tobacco;* also furnish opinions, *pro* and *con*, concerning its effects mentally, morally, physically.

EFFECTS OF TOBACCO.

VARIOUS OPINIONS.

DR. OLIVER WENDELL HOLMES.

"Shall we smoke? Certainly not. Smoking is liable to injure the sight, to render the nerves unsteady, to enfeeble the will and enslave the nature to an imperious habit likely to stand in the way of a duty to be performed."

"SCIENCE."

"In an experimental observation of 38 boys of all classes of society, and of average health, who had been using tobacco for periods ranging from two months to two years, 27 showed severe injury to the constitution and insufficient growth; 32

showed the existence of irregularities of the heart's action, disordered stomach, cough and a craving for alcohol; 13 had an intermittency of the pulse, and one had consumption.

"After they had abandoned the use of tobacco, within six months one half were free from all their former symptoms, and the remainder recovered by the end of a year."

REV. GEORGE L. CURTIS, M. D., D. D.

"The chemical elements of tobacco are decidedly poisonous to the human system, for which there are no known antidotes. The *first* element is a volatile oil or fat, obtained by distilling the smoke of tobacco. It has the odor of tobacco, and when inhaled produces the same sensation as smoke. When applied to the nose, its pungency causes vomiting; taken internally it produces giddiness, nausea and a staggering walk; it is poison.

The *second* element is a volatile alkali called nicotine; it, too, is a deadly poison, next in rank to prussic acid; one drop, on the tongue of a dog, will produce death; one drop, evaporated in a room holding two hundred people, is sufficiently penetrating to drive them out in a few moments.

"The *third* element is an empyreumatic oil abtained, also, by heat. A drop of this poison placed on the tongue of a cat will cause horrible agony, convulsions and death in from two to four minutes.

"These three chemical substances are all developed in smoking either a cigar or pipe. In the residuum of a pipe long used, they exist in a dark brown or tauny mass of offensive matter. If you expel a mouthful of tobacco smoke through a clean, white handkerchief, you will see, when it passes through the fabric, that it makes a black spot. Examine this black matter under a microscope of 500 diameters and you will see the chrystals of nicotine, the oil globules and the acid. All of these enter the mouth with the smoke, and some of it is *immediately* absorbed, and other portions of it after a time, and so they all enter the circulatory system.

"The manner in which tobacco is used is not in harmony with any of the laws of our being or our health. Chewing and

then *expectorating* is contrary to the use designed in the making of our tongue, teeth, lips and palate. It was never intended that we should chew substances and then expectorate them. Deglutition was designed to follow chewing. Man is the only spitting animal known except the cat, and it does not spit until it is mad.

"Smoking develops the chemical principles of tobacco, all of which are rank poisons and extremely dangerous. In smoking, the heat passes down too rapidly and causes changes which cannot be met by any anti-poisons. It turns the mouth (out of which ought to come blessings) into a chemical shop where vile things are compounded.

"The physiological effects of tobacco are destructive of health and life. In *chewing* tobacco, the salivary glands are stimulated to undue activity. In health, these glands secrete an average of three pounds every twenty-four hours; but when one is chewing tobacco, he secretes from eleven to thirteen pounds every twenty-four hours.

"In chewing tobacco, the glands become enlarged; the microscope shows the substance congested, hardened and thickened; and the orifices hardened and enlarged by such constant stimulation.

"Give an expert microscopist a section of the parotid gland, and he will tell you whether that person was a tobacco chewer or not. Chewing also brings some of the poisons into the system by the absorbing vessels of the mouth and throat. These injuriously affect both the circulatory and nervous system.

"A cigar, wet, and laid upon the stomach of a child will produce sickness; the skin absorbing the poison of the tobacco.

"In *smoking*, the *three poisons* alluded to, are developed. Tobacco, especially smoking, also causes intermittance of pulse beats; hence its injury to the heart.

"I desire also to say a word in regard to

"THE EFFECT OF TOBACCO ON BRAIN WORKERS.

"Men cannot be as good students who use tobacco as those who abstain. In the medical college of Indiana, during the

year, the students who wholly abstained from tobacco stood in their final examination at 87.33, while those who smoked, or chewed and smoked, stood at 80.14.

"Many years ago the Council of Berne, Switzerland, recognized the principle that 'tobacco is a deadly foe to mind development.' In consequence of this they issued an edict prohibiting the use of tobacco by youths under fifteen years of age.

"The French Minister of Public Instruction, after classifying the pupils into smokers and non-smokers, and finding the latter to be the better students, prohibited the use of tobacco in all the colleges of France."

DR. DIO LEWIS.

"Not a man addicted to the use of tobacco has taken the honors of Harvard College for the past *fifty* years, though five out of every six students use the weed." (This statement was made by Dr. Lewis a short time prior to his death.)

J. W. LAFLIN, IN NEW YORK SUN.

"There is no engine of destruction known to humanity today that is doing more damage than the popular cigarette."

SHOULD CLERGYMEN SMOKE?

DISCUSSED BY FAMOUS CLERGYMEN OF TWO CONTINENTS.

Note.—I am indebted to Mr. Edward W. Bok, editor of the *Ladies' Home Journal*, of Philadelphia, for the following interesting, surprising and varied opinions. I can but think, as I read them: "What a piece of work is man!" and in this case, what a piece of crazy patchwork—mental patchwork.

DR. TALMAGE ONCE A SMOKER.

It seems to me that this question of the use of tobacco by clergymen is one that every minister should decide for himself. I do not, therefore, speak for others, but express only my own individual opinion when I say that I believe tobacco to be ruinous to one's physical health, whether he be clergy or layman. It is not a rapid poison. The taste for tobacco may be

endured for generations, but sooner or later I believe it acts disastrously in some way, either to the mind or to the body. Nor is this a statement of glittering generalities. I know whereof I speak.

For many years I smoked cigars, but I do not do so now. I would not now think of smoking a cigar any more than I would drink a vial of laudanum. I came to give up the habit in this way: I was living in Syracuse, N. Y., but had just been called to Philadelphia. An elder in the Philadelphia church to which I had accepted a call offered, as one of the inducements to my coming, that he would give me all the cigars I wanted the rest of my life free of charge. He was a wholesale tobacconist and would have kept his promise. At that time cigars were higher in price than they are now, and the offer meant the saving of a great deal of money to me. I was then smoking to my full capacity, that is, I used as many cigars as health would permit. I thought to myself, what would happen if I should get them free? The thought so appalled me that I made a resolution then and there to stop smoking and never touch tobacco again in any manner or form, and from that day to this I never have. Now, I would not take up smoking again for all the surplus in the treasury.

As I said before, every clergyman must settle the question for himself, according to his own conscience and belief. But, as for myself, smoking is utterly out of the question. It is my opinion that many clergymen who have on their tombstone

"DIED IN THE LORD,"

might have for a more appropriate epitaph,

"KILLED BY TOBACCO."

BROOKLYN. T. DEWITT TALMAGE.

HOWARD CROSBY'S VIEWS.

The question is one for each individual minister to decide. Of course, I cannot say whether my brother clergymen should or should not use tobacco. It is out of the question for any man to dictate in this respect toward another, and, after all,

the question of smoking does not enter into one's moral life. The kingdom of God is a kingdom of righteousness and not a kingdom of what we eat and drink.

NEW YORK. HOWARD CROSBY

ROBERT COLLYER ENJOYS HIS CIGAR.

Should clergymen smoke? Well, they should if they want to. The question of clergymen smoking depends mainly upon the cigars they use, in my opinion. If I want to smoke, I do smoke, and it is nobody's business except, perhaps, my physician's. And I do not think that the use of tobacco has ever hurt my health physically, and I much enjoy a good cigar. However, I think that the quesiton of clergymen smoking is a foolish one. A great trouble with modern society is that we are hemmed in and around by too many barriers. The question of clergymen using cigars is not one that can concern the church at large or society at large. If a clergyman wants to smoke it is nobody's business, so long as he can afford it, provided it does not hurt his constitution—and he smokes good cigars. I enjoy good cigars and intend to smoke them as often as I please. However, if the use of tobacco affected my health, of course I would drop cigars instantly.

NEW YORK. ROBERT COLLYER.

DR. FURNESS, AT EIGHTY-EIGHT, STILL SMOKES.

I have been a smoker from my youth up. It has not prevented me from reaching my 88th year without any of the usual infirmities of old age, save a certain stiffness in stooping to pick up a pin. It is said that smoking leads to drinking. I think it is a mistake. It takes the place of drinking. Were smoking abolished, I believe there would be ten drunkards where now there is only one. I have no faith in doing things for example's sake. They must be done for their own sake; then, only, is the example good and influential.

PHILADELPHIA. WILLIAM HENRY FURNESS.

HEBER NEWTON IS PREJUDICED.

I fear that my judgment concerning the use of tobacco by clergymen is not a disinterested one. I am one of that by no means inconsiderable number of unfortunates, if not guilty beings, who cannot smoke themselves and cannot endure the smoke of others, and are always in a fix between their courtesy to smokers and their regard for their own wretched nerves. To me, thus prejudiced, perhaps, the case is a clear one. The sedentary habits of the parson, and the frequent overweight upon his nervous energies make the seductions of this habit peculiarly subtle, and at the same time render its evil effects, physically, peculiarly serious. Moreover, to a prejudiced eye like my own, it seems a very offensive habit for a "man of the spirit." I can scarcely fancy myself seeking spiritual consolation from lips whence issue the odious fumes of nicotine. The smoking habit seems so clear a luxury, and, withal, a more or less poisonous one, that the physical offensiveness of the smokers' presence is re-enforced by a certain moral offensiveness.

I find smokers, as a rule, utterly inconsiderate of the discomforts that their luxury inflicts on others—a by no means clerical frame of mind. But I confess to being prejudiced, and since some of the sweetest and best ministers I know are habitual smokers, I can only respect my own judgment.

NEW YORK. R. HEBER NEWTON.

DR. CUYLER NEVER SMOKED.

I never smoked a cigar or pipe in my life, and never expect to do so. It is a matter to be left to every minister's conscience and common sense. I fear some valuable lives have ended in smoke; and there are times when a cigar in a minister's mouth does not help the gospel that comes out of it, and is not a wholesome "example to the flock."

BROOKLYN. THEODORE L. CUYLER.

SMOKING MINISTERS BAD EXAMPLES.

More than one important religious denomination, notably the Methodists, now regularly makes inquiries of candidates for the ministry as to their habits concerning the use of tobacco. A large number of conferences refuse to accept habitual smokers as preachers. I think there should be a reform in this matter of smoking among young men, but nothing prevents it so much as the practice of a few distinguished preachers, whose habits in other respects are exemplary, but who, in regard to smoking, set a bad example to the young.

BOSTON. JOSEPH COOK.

DOESN'T SMOKE, BUT WISHES HE DID.

I am not a smoker, but I wish I were. There is some constitutional obstacle. The habit is not in my family. I smoked a little in college, but not from the pleasure of it. Later in life I gave it entirely up. The clerical life is one of much nervous excitement, which needs quieting, and, at the same time, of moral restraint, which ensures moderation. A cigar is a solace and companion. The student craves both. If these circumstances were known and considered, the smoking clergyman's example would be harmless; but as it is, in the present passion for exhilaration and injurious narcotics by people who do not require them, I am inclined to think the habit should be dispensed with by those who aim at elevating moral sentiment.

BOSTON. O. B. FROTHINGHAM.

WOULD SMOKE IF HE WANTED TO.

One cannot say whether clergymen as a class should or should not use tobacco. It is nobody's business, except in his own individual case. I do not use tobacco myself, but if I wanted to I should do so.

NEW YORK. MORGAN DIX.

NO MISTAKING HIS VIEWS.

I can give no opinion, based on experience, of the effects of smoking, as the practice has always seemed to me filthy and useless, and, therefore, indulgence in it is simply sensual. I think the practice inexcusable, except in the case of those who have begun it in an idiotic or vicious youth, and whose system is so saturated with the poison that they fear they will, through the shock the change would give the brain, revert into idiocy should they cease taking in the usual supply of nicotine.

NEW YORK. WILLIAM HAYES WARD.

HE RECOLLECTS HIS FIRST SMOKE.

I began to smoke at eight years of age and left off the same day. The cane cut from the hedge made me sick, and all my experience since has made me more sick of what I regard a dirty, costly, tyrannical and unhealthy habit. Excuse may be made for some elderly or afflicted smokers, but the practice should be especially avoided by ministers. There are, in every church, some who will be pained by such an example; some who may be injured by following it. Smokers are liable to become slaves to the habit, so that its indulgence gets to be a necessity of life. They are uncomfortable without it; they become reckless of the comfort of others; they must smoke in the streets, in the car, in the house, in the bedroom. It often leads to drinking, wastes time, and costs money which is needed for better objects.

LONDON. NEWMAN HALL.

NEVER USED THE WEED.

I have never used tobacco in any form, and therefore write without that knowledge which is derived from personal enjoyment of the cigar.

From such study as I have been able to give to the matter, I am not able to discover any physical or moral argument for smoking. The arguments appear to be all on the other side. While the evils of alcohol are vastly greater than the evils of

tobacco, on the other hand it appears to me easier to construct an argument in favor of the moderate use of alcohol than in favor of the moderate use of tobacco. The physical evils that result from the tobacco habit are notorious. The moral evils appear to me also serious.

Whatever may be the imagined benefit of smoking to overworked men (and women ; if it is a sedative, who need it more than the wives and mothers?), it is by substantially universal consent an injury to the young men in our stores and colleges, but the boys in their teens are inveterate smokers.

The minister should teach by his life; he should set an example which he is willing his congregation should follow; he should walk in the paths in which he desires that the boys and young men who look up to him should walk.

As I personally do not wish to see the boys in my Sunday schools, nor the young men in my church and congregation smoking, I do not propose to set them the example of the smoker. And I cannot but think that, on the one hand, if all ministers were of the opinion, and set a universal example against the cigar, it would count for something; and on the other hand, that there is a certain incongruity in a smoking clergyman preaching a sermon on crucifying the lusts of the flesh, or denying ourselves for the sake of our neighbors.

And yet some of the noblest, most devoted, most consecrated ministers in the Church of Christ, men whom before I bow in reverence, are habitual smokers.

BROOKLYN. LYMAN ABBOTT.

THE BAPTIST CHURCH SPEAKS.

It is neither better nor worse in the sight of God for clergymen to smoke tobacco than it is for other men to do this. I have no experience on this subject, having never tasted tobacco in any form. In early life I read many essays on the subject from the ablest pens, all showing that its effects upon the animal and mental nature were injurious, and so I eschewed it forever. There is something so unclean, morbid, and adverse

to the daily life of the Lord Jesus in the practice of smoking, chewing or snuffing tobacco, that the very thought of associating the Son of God therewith would be scouted by the slaves of these practices as savoring of blasphemy. And yet, many of His ambassadors quite excuse themselves in preaching His Gospel from mouths and throats saturated with this filthy product. As a rule, ministers will palliate their conduct in the use of tobacco by some semi-solemn or even comic joke, which may suffice to hoodwink themselves to the evils of the offensive practice, but such trash never hoodwinks either the holy God or sensible men. This is a mere mockery of their own shame. Adam Clark severely reproved two of his brethern for their smoking. "Yes, Doctor," they said, "we are burning our idols." "Brethern," replied the indignant commentator, "if you want to please the devil better than by burning your idols, offer him, I pray you, a roast pig stuffed with your tobacco; it will be the most delicious sacrifice that you can devote to him."

There are plenty of Christian men, and I fear, clergymen, too, who spend more money every year ruining their health by tobacco than they devote to the spread of the Gospel by Bible distribution and by missionary work.

Tobacco and rum are twin-daughters of Satan, and it is of but little use to pray "Thy kingdom come" while we tamper with these deadly poisons.

NEW YORK. THOMAS ARMITAGE.

DR. BURCHARD A FIFTY-YEAR SMOKER.

There is no special law to regulate the doings of clergymen. In habits or acts not positively sinful they must be governed by the law of expedience. Smoking is such an art. If the habit is formed to injure the health of the one who thus indulges, obscures his intellect, or leads others to excess, then he should abstain. If, however, he finds that smoking tranquilizes the nerves, lessens the jar and friction of life, aids digestion, then he may quietly indulge. Those reformers go to the extreme who put smoking on a parallel line with the use of

intoxicants. They lead to very different results. Even the excessive use of one does not lead to poverty, violence, misery, and utter abandonment of all that is manly, virtuous and good. Over the evils of the latter an angel might well weep. For the relief of an early infirmity I have indulged in the use of one cigar a day for more than fifty years and have experienced no evil effects.

NEW YORK. S. D. BURCHARD.

DR. McCOSH TELLS HOW IT CAN BE PUT DOWN.

Smoking will be put down when young ladies declare that they will not look with favor on a young man who smokes, and when congregations declare that they will not take a minister who smokes.

PRINCETON, N. J. JAMES McCOSH.

EQUAL RIGHTS FOR CLERGYMEN.

I see not why clergymen should not smoke if men of any sort of other professions do. I have never been a smoker myself, but it seems to me to be the same question mentally and physically for all persons alike, and the example of a smoking clergyman, if hurtful, is equally so by men of other sets.

BOSTON. C. A. BARTOL.

CANNON FARRAR, OF WESTMINSTER, SPEAKS.

I have never been a smoker, never having felt the smallest need to adopt the practice, or the smallest attractions toward it. Whether smoking is injurious to the health of full-grown men or not, I am unable to say; but many who begin by smoking in moderation go on to smoke in excess, and there they injure their health very seriously.

It seems to me that when man has so many natural wants it is not desirable to add to them another want, which can only be regarded as artificial.

LONDON, ENGLAND. FREDERIC W. FARRAR.

AN EDITOR-CLERGYMAN ENJOYS HIS SMOKE.

If any one should smoke, why deny the privilege and pleasure to a man of the cloth? If no one ought to smoke, then I imagine the clergymen should be included. I have noticed that nearly everybody who doesn't smoke thinks it sinful, a vile habit and a waste of silver dollars; while the man who does smoke believes that it warms his heart, clears his head and helps to make life worth living. Fortunately, I am my own double—a clergyman and a journalist. As a journalist I take unspeakable comfort in a good cigar. There is poetry in its lifting clouds, and I watch them with a placid sense that I am enjoying a very innocent pleasure. Moreover, my clerical conscience does not rebel, but accepts the situalion with serene approval. I should say, then, that a clergyman may smoke if he wishes to. If he does not wish to, he may credit himself with resisting one of the softest blandishments of this cold world, and denying his tired nerves one of the most precious narcotics that ever threw its magic spell over ill-temper and substituted good nature for chronic irascibility. You may rob others of their cigars if you have the requisite strength and hardness of heart, but you can't get mine unless you weigh a good deal more than I do.

Yours, with a puff,

NEW YORK. GEORGE H. HEPWORTH.

BISHOP COXE DOESN'T LIKE IT.

I know so many men far better than myself who enjoy the rank weed that it seems in bad taste for me to rebuke a habit to which I am not tempted personally. But *it is an expensive habit;* and they who make appeals for hundreds of good and needy objects might save for charity what does no good to anybody. It is a bad *example of waste* to the young. I asked a youth to save for buying books every dollar he usually expended for buying cigars, and in a very short time he showed me an admirable little library *saved from smoke.*

It is an *offensive habit* to innumerable persons whom we are

commanded to love as ourselves. A lady who entertained a worthy clergyman once objected to receiving him again. She said: "It took a week's airing and some scrubbing to get the nauseous smell out of my guest chamber and out of clothes that hung in one of its closets."

It is a *social habit* that leads to the *society* of men who waste time in puffing smoke and telling anecdotes not always the most likely to "minister grace to the hearers."

A lady once said her pastor came to pray with her as she lay sick and expecting to die, but the smell of tobacco which he brought into the room with him nauseated her and spoiled all his heavenly exhortations.

A young man once said to me that he had obeyed his mother and given up the habit, when he saw a reverend D.D. smoking and joking in a public place, but this so disgusted him that *he obeyed his mother better than ever.*

BUFFALO, N. Y. A. CLEVELAND COXE.

THOS. K. BEECHER SAYS DON'T.

Tobacco? Yes, it has done me damage; it has brought me benefit; slight excess, I think, of damage.

If consulted, I should reply *don't.* If asked, Why not? should say, Why?

To me, anything without a good reason is, at best, an experiment, and experiments are risky. Abstain until Nature calls for help. Then take advice or experiment cautiously—very cautiously. A good servant may prove a most cruel master. Tobacco has its uses, no doubt. He is a rare man who learns to use it usefully.

THOMAS K. BEECHER.

THE ELDER BEECHER THINKS IT A SIN.

My deepest feeling is excited by the great extent to which ministers of the gospel are involved in the sin of using tobacco.

It not only injures them physically, but morally. Against unanswerable evidence of its wide-spread evils—physical, intel-

lectual and moral—they subject themselves to a habit of ruinous self-indulgence, and do all that example can do to induce others to do the same. Then of what avail is it to preach to men to deny ungodliness and every worldly lust?

While ministers of the gospel oppose one with vivid eloquence, they advocate the other by example, and are a rampart to defend it against all assault.

BROOKLYN. EDWARD BEECHER.

BISHOP POTTER'S SUGGESTION.

I do not think that clergymen are under any obligation to smoke. Whether they ought *not* to smoke is a question concerning which I would suggest that you obtain the views of the Rev. Mr. Spurgeon.

NEW YORK. HENRY C. POTTER.

CHAPLAIN MILBURN THINKS IT DEPENDS.

As to the habit of smoking tobacco, every minister should be fully persuaded in his own mind; careful to observe its effects upon his health, and likewise his disposition and capacity for work. Without doubt it is injurious to many persons, but not to all or even a majority. If all the ministers of the United States were to abandon the habit, I do not believe the number of smokers would be lessened, except by their count; the matter of example, therefore, goes for little.

WASHINGTON, D. C. W. H. MILBURN.

CHAPLAIN McCABE SAYS NO.

Clergymen certainly should not smoke. No clergyman should do anything he does not expect and wish the young men in his congregation and Sabbath school to do. How can a man reprove boys for smoking if he does it himself? No, save us from clergymen who smoke! I am glad the Methodist church has decided not to admit young men to her ministry who are addicted to the practice.

NEW YORK. C. C. McCABE.

NOT HIS BROTHER'S KEEPER.

I have no wisdom to impart on the question whether clergymen should smoke. I do not smoke myself, nor do I judge those who do.

COLUMBUS, O. WASHINGTON GLADDEN.

THE AUTHOR OF "AMERICA" BEARS TESTIMONY.

I am glad to bear my testimony against the evil practice of the use of tobacco by ministers of the gospel. They are often called to visit in the chambers of the sick, whose sensitive frames are pained and disgusted by all the ill-savored odors carried in the breath or in the clothing of visitors. Intimate conversations of sympathy with the afflicted, or of advice to the troubled and to inquirers—all alike demanding proximity, will often be unwholesome and distressing, not to say impossible.

NEWTON CENTRE, MASS. SAMUEL FRANCIS SMITH.

A VOICE FROM ANDOVER.

Some concessions must, in fairness, be made to the smoking habit. It is not a sin in any man whose own conscience does not so instruct him. It should not be made a test of character even in our private judgment of men. As a man thinketh so he is. It is not a proper subject of ecclesiastical prohibition. The distinction is not a wise one which forbids it to clergymen more imperatively than to laymen. That is not a healthy type of religious faith which lays the clergy under prohibitions which are not thought necessary in regulating the conduct of other men. Yet, there are few, if any, usages morally innocent in themselves of which so many things can be said to their discredit as may be said of the use of tobacco as an indulgence.

The habit is against nature. Tobacco is neither food nor drink. So far as I know, it is not medicine except to a sick sheep. No natural appetite of the human body craves it. Of the whole animal creation, but one species naturally takes to it

—and that is a worm. Intellectual culture is not fostered by it. Nor does it quicken or gratify spiritual aspirations.

General Stonewall Jackson once said to his daughter that since he had reached adult years he had not taken a mouthful of food at any hour of day or night without asking the blessing of God upon it. The General was a native of a tobacco-growing State, and probably a smoker. But it may be reasonably questioned whether he ever sought the divine blessing upon his daily cigar. What smoker ever did? Yet why not? Can smoking clergymen answer this question?

An immense and increasing number of Christian believers condemn the habit as being unsympathetic with the imitation of Christ. The drift of the noblest and purest civilization is palpably adverse to a usage which so distinctly subordinates mind to matter, soul to body.

ANDOVER THEOLOGICAL SEMINARY. AUSTIN PHELPS.

DR. ALGER'S VIEWS.

It is the duty of a clergyman by precept and example to teach other men their duties. Therefore, no clergymen ought to smoke, because smoking is a vice. It is a vice because it is a master of labor, time, attention and health. I believe that intoxicating liquor and tobacco are the two chief enemies of the human race. It seems, therefore, as clear as the sun in heaven that no clergyman can be held guiltless who does not set a personal example in opposition to them both.

BOSTON. WILLIAM R. ALGER.

With due deference and reverence to the opinions of the great minds that have expressed themselves on this important subject, I desire to add a word from the standpoint of the teacher of physical training.

Believing, as I do, that the only *perfect* development is an all-round development; that is, mentally, morally and physically, I shall touch upon this question by considering, briefly, these three phrases:

Mentally—Noted physicians concur and statistics prove that

the use of tobacco is detrimental to the highest and best development of the mental faculties.

Morally—Those who argue in its favor are, in the main, users of the weed. Is it not inconsistent to preach against petty sins when one cannot himself lay by the sin that doth so easily beset him? Is not his imperfect vision due to the fact that he has not cast the mote out of his own eye?

To argue in its favor because the ministerial duties (or any other duties) are such that a sedative finds its best expression in tobacco, is to argue against reason itself. It is surely illogical.

If the minister or business man *needs* tobacco, so does the *wife*, and he should not hesitate to accord the same privilege to the partner of his joys.

A *man* does not need tobacco any more than does a *woman*.

A woman does not need tobacco any more than she does a *corset*.

A *man* does not need *tobacco* for his *nervous* system any more than he needs a *corset* for his *physical* system.

While tobacco and intoxicating drinks are not on a par, the one who uses the former cannot consistently preach against the latter; both are evils; both, when uncontrolled, are destructive of mind, morals and health.

If the user of *tobacco* is a *slave* to the weed, and the user of *intoxicants* is a *temperate* or *moderate* drinker, then the words of the former would be still more ineffectual, as it would be the voice of intemperance against temperance.

There is no denying the fact that to use tobacco in any form or to any degree is to stunt one's mental, moral and physical growth if the habit is begun at an early age. However great the user of tobacco may have become, mentally, morally, physically, I can but think how much greater he *might* have been had he never been addicted to the habit.

How a *minister* can use tobacco is beyond my comprehension. An ambassador of Christ is supposed to follow Christ's example; at least, he is always exhorting others to do so. It seems almost sacriligious to mention the name of Christ in

connection with this subject. But, if Christ, who bore the burdens (sins) of the world, had no occasion to resort to the evil, how much less should one who professes to be living in the very shadow of the cross, and teaching others to live a Christ-like life. Your example will live long after your precepts have been forgotten.

Yes, one can *conscientiously* chew or smoke. One can conscientiously do *many* things. One can conscientiously do to-day that which he could not conscientiously do yesterday. Conscience is a creature of education. You may quiet it; you may put it to sleep; you may *smoke* it beyond the possibility of a resurrection; but listen to your *intuition;* it is a *truer* guide; it is a "still, small voice" that can never be hushed.

Physically—Where one escapes the evil results, thousands are harmed. Its evil effects are countless. Some constitutions may and do become accustomed to the deadly poisons, but that is no argument in favor of its use or continuance. You can accustom the system to any poison. You can so educate it that it may become inured to any hardship.

Having considered *two* of the evils that exist, to an alarming extent, against body, mind and soul, let us briefly, delicately yet honestly, contemplate the *third*.

CORSETS.

(More Properly Curse-its.)

We often hear of women "being dressed to kill." How true! How literally true! "'Tis pity 'tis, 'tis true." The corset impedes respiration, compresses the muscles of the abdomen, subjecting them to unnecessary friction, and actually impedes the free action or movement of the body.

Any form of dress that constricts the base of the lungs and presses upon the stomach, liver and intestines must do serious harm.

True, the corset is a hackneyed subject; so is temperance; so are all questions of reform. But we should remember that temperance should be applied to *all* things.

A woman does not *need* a corset. It is an artificial support. A man does not *need* alcoholic stimulants. The only difference in the evil is one of degree; the woman *braces up* on the *outside;* the man on the *inside.* Both are false, unnatural stimulants.

In discarding the corset, one should not go to the other extreme, that of slouchiness in appearance of the waist. A substitute must be had. A well-fitting waist to which the skirts may be attached, in order that the burden of weight be removed from the waist to the shoulders.

A slender waist, *made so by a corset*, is neither healthful nor beautiful; and only an ignorant mind or perverted taste would ever regard it as such.

"On the score of health," said my friend, the late Lewis B. Monroe, of Boston, "the distorted feet of the Chinese, or the deformed skulls of the Flathead Indians are less objectionable than the cramped waists of our devotees of fashion."

The athletics for women have done much to remove this evil; as all physical directors insist upon proper dress for the perfect freedom of the waist muscles.

To dress in a moderately snug-fitting waist after exercising is all right, but to put on a tight-fitting corset is positively *cruel*—cruel to the vital centres of the body to so imprison them after having given them their liberty.

A word to the wise is sufficient. The *new woman* does not need this caution, for by slow degrees—and not so very slow, either—she is adopting man's apparel.

I think we should establish one law, whether of the body or of the mind; whether in the form of pleasure or of physical exercise, or of dress; that is, it should be encouraged or discouraged, according as its effects are beneficial, or otherwise, to the health and to the morals.

METHODS OF TRAINING.

MANY MEN—MANY MINDS.

HOW THE MODERN SAMPSON ATTAINED HIS WONDERFUL STRENGTH.

"At the age of not quite fourteen years I was struck by lightning along the right side of my body. After being confined to my room for three weeks I was able to leave my bed for several hours each day, but my suffering was much greater when evening came.

"From the ceiling above my bed two strong ropes were fastened which extended down within my reach. To these, steel rings were attached, by which means I could raise myself and thereby strengthen my arms.

"One day one of the ropes happened to break, and I playfully took the ring and slipped it upon my arm and forced it up to the muscles of the upper part of my arm, and made movements of the muscles, little thinking that this would so greatly benefit me. I made several movements with the arm on which I had placed the ring, and in consequence felt an easy sensation.

"Five months from the time of having the stroke of lightning, I felt myself not only well, but better and stronger than ever before. I never ceased my course of practice with the steel rings, but with every opportunity that offered I would slip a ring upon my arm and make muscular movements.

"One day I discovered by a strong movement of the muscles—bending my elbow—I sprung the ring out of its former shape. I procured more powerful rings, which were also soon forced into an oval shape by the strength of my muscles. I felt myself growing very strong, and then broke ropes and chains, and bent rings out of their original shape; in fact, everything that came in my way I would make an effort to bend or break.

"I shall be pleased to also give you my *method* of

"STRENGTHENING THE MUSCLES.

"Bathe the muscles of the upper arm with cold water, and rub down well every morning and evening. Draw a thin ring

of steel up to and so closely over the upper arm muscles as to choke the circulation of the blood. Through diligent working of the muscles the blood will find its way through, and thereby strengthen the muscles. Before the ring is placed upon the arm the muscles should be well rubbed with oil to prevent the skin from breaking.

"By daily practice of the foregoing, one will not only strengthen the muscles of the arms, but also the muscles of the whole body, particularly those of the chest. Any one who will follow the instruction herein given, I will guarantee that he can acquire the extraordinary strength that will enable him, within the short period of three months, to hold at arm's length 100 pounds with one hand.

"The strength which I have attained through diligent practice, and am capable of holding with my right arm, back or chest, will aggregate from 3,000 to 5,000 pounds.

"What *I* have done, any healthy person can do through diligent practice.

A WORD OF ADVICE.

"The principal thing to maintain the body in its vigor is a regular mode of living. Three regular meals should never be exceeded, because if the *body* wants its rest, the *internal* part of it must also have rest after doing its work.

"The food of which I partake is meat, eggs and rye bread. All that is composed of potatoes I avoid, because this food is liable to go over into the meat and thus keep the muscles from proper development, thus destroying the power of the body.

"I advise every one who wishes a good muscular development to *give up tobacco* in every form."

METHODS OF THREE WELL-KNOWN ATHLETES—CHECKLEY—MULDOON—LAFLIN.

From the New York Sun.

"To hear Checkley, one would much rather not have Muldoon or Laflin's training as a gift. Not that Checkley speaks disparagingly of these eminent athletes, but because that which they declare beneficial to the body he believes postively detrimental.

CHECKLEY.

"The Checkley system is founded on this basic principle: instead of drawing water, punching the bag or pulling a rowing machine for the purpose of making your muscles grow and your lungs expand, restrict the contraction of the muscles by an effort of the will. If lifting a 50-pound weight from the floor will cause a visible swelling of your biceps and so exercise that muscle and produce what is conceded to be a desirable result, then by the Checkley system one may 'go through the motions' of raising the weight without doing any work at all—for raising the weight would be 'work'—and by an act of volition swell and so exercise the same muscles and derive the same benefits from the exercise.

MULDOON.

"Muldoon believes in *work* for his pupils. He made Sullivan do the hardest work of his life when in training for the fight with Kilrain. He had Police Superintendent Murray making hay, and pounding a block of wood with a big hammer before he had been at the Belfast farm forty-eight hours.

LAFLIN.

"Laflin prefers *out-door sports* to *out-door work*, and *rowing machines* to most *other* apparatus for *indoor* exercise. Instead of setting a man to raking hay, he accompanies him on long fishing, shooting, swimming or rowing exercises."

SANDOW.

From the pen of Dr. G. F. Lydston, in the Journal of the American Medical Association.

"Of all the living modern examples of muscular possibilities, Sandow is probably the finest specimen. This man shows, in a very marked degree, the wonderful results which can be obtained by a systematic, philosophical method of muscle-building.

"When at rest, Sandow's muscles and skin are soft and pliable, but when the muscles are contracted from voluntary effort, it is well-nigh impossible to pinch up the superlying tissues.

"Much curiosity has been exhibited regarding *Sandow's system of training*, especially as regards his diet and mode of living. It is noteworthy that he eats, drinks and smokes as he pleases; the old-fashioned ideal of dietetic restriction for athletes evidently having very little weight with him. It is astonishing that he is not compelled to be more abstemious, but he is, apparently, quite as capable of immense muscular effort after a course dinner and a liberal supply of wine, followed by one or more cigars, as at any other time. After his performance he takes a cold sponge-bath and a rub, as does every well-informed athlete.

"By systematic practice in this direction one is enabled to get sufficient exercise without any apparatus whatever. It is the relative degree of *control* which the individual acquires over his various muscles rather than their bulk, that determines their strength. Such enormous development as that of Sandow is by no means necessary nor even advisable. Feats of strength do not constitute the aim of ideal athletics; that is, athletics for health. Given a *bulky* muscle and we usually have a *slow* muscle. The ideal muscle is not always the one which stands out in such bold relief as do those of Sandow. The average big-muscled man is muscle-bound and, perhaps, shoulder-bound; and while Sandow is apparently an exception to this rule, he, himself, in all probability, displays to less advantage in feats requiring a combination of skill, strength and agility.

"Experience has shown that bulky-muscled men are, on the average, failures as pugilists and wrestlers. Corbett is an ideal athlete, yet his muscles are smooth, well laid and not bulky. It is to be hoped that Sandow's exhibitions may not have a pernicious effect upon aspiring youths, who imagine that ideal training implies great feats of strength, and muscles which stand out in bold relief like an anatomical demonstration.

"A point worthy of consideration is the fact that Sandow is of a very phlegmatic temperament. Persons of a more sensitive organization, and brain-workers, would soon pass the danger line if they attempted to emulate Sandow. The personal equation must be remembered in athletics as well as else-

where. A word of caution is also necessary in respect to diet and drink.

"While a restricted diet is a relic of the past in athletics, more care is necessary than Sandow imposes upon himself—the personal equation again. Wine, tobacco and athletics mix but poorly.

"The question now arises: What damage, if any, does such work as Sandow's produce upon the individual?

"From what has been said of Sandow's present condition, one might be led to infer that such feats of strength are harmless, but such is not the fact. Sandow is confronted by two dangers; first, death at an early period after complete suspension of his athletic strain; second, death at middle age or soon thereafter from a continuance of this work. In the first instance we will suppose that our subject ceases his work—voluntarily or otherwise. In this event he is confronted by a serious problem. He has solved the problem of developing his heart and lungs *pari passu* with the general muscular system; but how is he going to bring about involution of his lungs and heart *pari passu* with the general muscular involution which must follow rest? To do this is impossible, and the result is a relative disease of his enormous heart and lungs. Disuse means decay; degeneracy of cardiac fibre and lung tissue results; degeneracy offers a constant invitation to disease of various kinds.

"The most powerful pugilist America ever produced quit the 'squared circle' and entered a counting room only to die of consumption within a year.

"The athlete hath need of large lungs, but large lungs without the accustomed exercise were a misfit in a sedentary occupation.

"It has been said that 'a man is just as old as his arteries.' Many a strong man has verified the truth of this to his cost.

"At forty-five Sandow will be in the prime of his strength; his heart and arteries, however, will not be in the prime of their elasticity. Readjustment, after strain, will be no longer possible. Degeneracy of arterial walls and cardiac fibre will

occur; dilitation of the heart and trouble with the coronary and minute cerebral arteries is likely to develop.

"Sandow is a wonderful man, but his example is pernicious. His system of muscle-building is superb; its application may be dangerous."

For my own part I cannot see how any system can be considered practical, hence beneficial, that cannot be continued from year to year until a good old age. This, of course, does not apply to the more vigorous work done in the gymnasium on horizontal bar, parallel bars, ladders, rings, etc.

Such a system of exercise is intended chiefly for persons from youth to middle age, after which time the work is too violent for continuance. It is, in reality, foundation work, and should now be substituted by a less vigorous form of exercise, such as will prevent that decay and disease which must inevitably follow the disuse of muscles long accustomed to regular exercise.

During all of this time—from middle age onward—the heart and lungs and legs may be daily exercised by one taking the stationary running, or in a less active form by walking. The development of the arms and chest may be kept up by light, yet vigorous, dumb-bell exercises. Every joint of the body should be exercised daily by the devitalizing exercises; in short, almost all the exercises given in "Physical Training Simplified" may be so graded, according to one's age and strength, that almost, if not all of them, can be performed daily, regularly, systematically, until you "stand with one foot in the grave and the other all but in." Then when the body returns to mother earth it shall have fully performed its mission as the habitation of the soul.

SYMMETRICAL DEVELOPMENT.

An interview as published in New York Telegram.

THE PERFECT MAN.

Turn a man with his face to the wall. If he be perfectly molded and symmetrically made, his chest will touch the wall.

his nose will be four inches away, his thighs five inches, his toes three inches. It is seldom that you will find a man that can stand the test.

THE PERFECT WOMAN.

In woman, a height in proportion to weight; a form that will stand the following test of symmetry: A carriage that is free, distinct and noticeable for that which is *not*, rather than for that which *is*.

The greatest and first essential to physical perfection in woman is a figure without an angular line. Nature avoids angularity everywhere, but in the human form especially.

Stature and weight are comparative; still a mean height and weight must be chosen. A perfectly formed woman will stand at the average height of 5 feet 3 inches to 5 feet 7 inches. She will weigh from 125 to 140 pounds. A plumb line dropped from a point marked by the tip of her nose will meet at a point one inch in front of her great toe. Her shoulders and hips will strike a straight line drawn up and down, Her waist will taper gradually to a size on a line drawn from the outer third of the collar bones to the hips. Her bust will measure from 28 to 36 inches; her hips will measure from 6 to 10 inches more than this, and her waist will call for a belt from 22 to 28 inches.

PROPER WEIGHT, HEIGHT AND MEASUREMENT OF A FULLY DEVELOPED MAN.

Height.	Weight.	Neck.	Waist.	Chest.	Biceps.	Fore-arm.	Thighs.	Calves.
5 ft.	103–107	11⅛	29	32–33	Same measurement as for neck.*	8⅞	15	Same measurement as for neck.*
5 ft. 1 in.	107–111	11½	29½	33–34		9¼	16	
5 ft. 2 in.	111–116	12	30	34–35		9⅝	17	
5 ft. 3 in.	116–121	12½	30½	35–36		10	18	
5 ft. 4 in.	121–127	13	31	36–37		10⅜	19	
5 ft. 5 in.	127–133	13½	31½	37–38		10¾	20	
5 ft. 6 in.	133–140	14	32	38–39		11⅛	21	
5 ft. 7 in.	140–147	14½	32½	39–40		11½	22	
5 ft. 8 in.	147–155	15	33	40–41		11⅞	23	
5 ft. 9 in.	155–164	15½	33½	41–42		12¼	24	
5 ft. 10 in.	164–174	16	34	42–43		12⅝	25	
5 ft. 11 in.	174–185	16½	34½	43–44		13	26	
6 ft.	185–196	17	35	44–45		13⅜	27	

*This rule has long been observed, especially among artists, but it is not true to life, for very rarely do we find either men, women or children who have their neck, upper arm and calf measurements the same. As a rule, the upper arm is the smallest of the three.

BICYCLING.

VENI, VIDI, VICI.

The bicycle *came;* the bicycle *saw* the need of its coming, the bicycle has *conquered* most of the ills to which flesh is heir.

There is no denying the fact that there is no exercise more exhilarating and less exhaustive than a spin on the wheel.

BENEFITS.

To obtain the greatest benefit there are two things absolutely imperative, viz: a correct sitting posture and the mouth kept shut.

Sitting correctly leaves the vital centres (heart, stomach, liver, etc.) in a position for perfect action. This is especially important as regards the digestive organs and the heart. Stooping and dropping the head as low or lower than the handle bars may be essential for racing, but racing is not essential for health.

One may incline the body forward but he should not bend or break it, so to speak, at the waist. The movement should be entirely from the hips.

With the mouth closed and with a fair rate of speed, deep, full breathing is a natural consequence, the nasal passages are cleared, the brain receives new life force, the lungs are expanded, the pulse is quickened, the liver loses its torpidity, the blood is purified, dyspepsia takes its flight, headaches are as quickly dispelled as dew before the morning sun; in short, life is made worth the living.

WALKING VS. THE WHEEL.

The question is often asked: "Why am I tired when I walk a mile but am invigorated when I ride many miles on the wheel?"

The answer is a simple one. In the one case, the legs bear the burden of the body; in the other the exercise is taken while sitting, thus economizing the expenditure of vital and nervous force. Again, the entire nervous force of the body is retained, being insulated by the rubber tires; hence one's mag-

netic force is constantly increasing; whereas, in walking (unless wearing silk hose or rubber-soled shoes) every touch of the foot to the ground causes the positive forces of the body to go out to the more negative forces of the earth; therefore, exhaustion is more likely to follow a long *walk* than it is a much greater distance made upon the wheel. A long walk, however, is or should be exhilarating when one walks correctly and erectly with the chest raised and fixed independently of the breath, and with a full sweep of the leg from the hip joint, with as little knee action as possible. The deep inhalations, in each case, cause the exhilarating influence as a result of more oxygen, better respiration and more thorough circulation; but in the former method there is more conservation of vital and nervous force.

WILL BICYCLING REDUCE ONE'S WEIGHT?

No, not *ordinary* riding. It has a tendency (and naturally, too) to *increase* one's *weight*, but to *decrease* one's *size*. If one is overcorpulent it will burn out the adipose tissue, giving good, solid flesh instead.

The "baby bicyclist," weighing 408 pounds, thought to reduce his weight by riding a bicycle. At the end of a few weeks he weighed 510 pounds, but did not *appear* so large as when he weighed 408 pounds. He rode only on paved streets, and where no special exertion was required. Nevertheless, he burned out adipose tissue, and was not as much handicapped by the extra weight of good, solid flesh as he had previously been by the superabundance of fat. This, however, is a rare exception.

In my own case (although I fell off 190 pounds the first day; fell off that amount several times the first day), I gained gradually every day until I tipped the beam at 201 pounds, my present weight. But I belong to the "heavy weight" class, and am so constituted that I "train up" unless the exercise is carried well-nigh to the point of exhaustion.

WILL BICYCLING MAKE THIN PERSONS THINNER?

No, the bicycle is a godsend to the frail, delicate or thin person who desires health, strength and good, solid flesh; that

is, if (and I desire that if as large as it can be made, that it may be impressed every time they mount the wheel, and every time they eat) they observe the caution in regard to correct posture, keeping the mouth closed, riding in moderation, and last and most important of all, if they eat the proper food for blood making; otherwise, the less of such exercise one takes the better. Proper and sufficient nourishment must be had in order to supply the muscles that waste. The *outgo* must not exceed the *income*. Bear in mind, it is not the *quantity* but the *quality* of food. This applies with equal force to the brain-worker.

Mark Twain is credited with saying that "It is a poor mule that won't work both ways." So it is with the wheel. It is helpful alike, and yet not alike, to the person who is too fleshy and the person who desires more flesh; yet it is not a case of robbing Peter to pay Paul, for both are benefited.

WILL BICYCLING GIVE SYMMETRICAL DEVELOPMENT?

No. The legs will be developed to an undue proportion of the arms and upper portion of the body; also, at an *expense* of that portion of the body; hence the necessity of dumb-bell or Indian-club work for those lovers of the wheel who desire equal development and equal strength.

Of course, this applies to one who is accustomed to riding, and does not make any effort of the upper portion of the body; while the novice, who clutches the handle bars with a death-like grip, will find an increase, instead of decrease, of the fore-arm muscles; but this development is short-lived.

Therefore, in proportion as one rides the wheel, he should exercise arm, shoulder, neck, chest and waist muscles.

LONGEVITY.

Three score and ten is a fairly good age, but it is by no means the limit; nor can I think it is intended to be interpreted as such. There is another passage which reads:

"*There shall be no more thence an infant of days, nor an old*

man that hath not filled his days; for the child shall die an hundred years old."

Some persons fancy that their work is about done when they reach the age of fifty; that is only foundation work upon which to erect a noble structure. But during all these years he should lay a foundation suitable for such a structure.

I cannot refrain from quoting a portion of Longfellow's poem bearing upon the subject. I trust that others may gather inspiration therefrom, as I have done many, many times. And as the years go by, I read the lines each time with more clearness, and with renewed enthusiasm, turn to my life work, hoping, wishing, praying, working that the sunset of life may not come too soon, and find my pen idle, my voice silent, my hands empty when all of them should have many more years of service for the betterment of humanity.

"It is too late! Ah, nothing is too late
Till the tired heart shall cease to palpitate.
Cato learned Greek at eighty. Sophocles
Wrote his grand Œdipus, and Simonides
Bore off the prize of verse from his compeers,
When each had numbered more than four-score years.
And Theophrastus at forescore and ten,
Had but begun his Characters of Men.
Chaucer, at Woodstock with the Nightingales,
At sixty wrote the Canterbury Tales;
Goethe, at Weimar, toiling to the last,
Completed Faust when eighty years were past.
These are, indeed, exceptions; but they show
How far the gulf-stream of our youth may flow
Into the Arctic region of our lives
Where little else than life itself survives.

"Something remains for us to do or dare;
Even the oldest tree some fruit may bear;
For age is opportunity no less
Than youth itself, though in another dress."

It was said of the elder Cato, of whom the poet writes, that in his description of an ideal old age, he said: "Years will steal upon him insensibly; he will grow old without feeling it; nay, when he comes to break at last, the house will crumble gently and fall down so slowly as not to give him any pain."

I wish to offer another word of encouragement. In the year 1850 there were, in the United States, 2,555 persons over the age of 100 years.

Let us turn to such scientists as Farraday and Farr for opinions concerning this matter of longevity.

PROF. FARRADAY.

"The duration of life, both in man and animal, is to be measured by his time of growth; the natural termination being at five times that age, or five removes from that point. Man, being twenty years in growing, lives five times twenty, or 100 years.

"Life should be divided into two equal halves—growth and decline; and these two into infancy, youth, virility and age. Infancy extends to the twentieth year; youth, to the fiftieth, because it is the period the tissues become firm; virility, from fifty to seventy-five, during which the organism remains complete; at seventy-five old age commences."

DR. FARR.

"The natural life time of a man is a century; the length of time the body will live under the most favorable conditions. I should divide life as follows: Boyhood, ten to fifteen years; youth, fifteen to twenty-five years; manhood, twenty-five to fifty-five years; maturity, fifty-five to seventy-five; ripeness, seventy-five to eighty-five; old age, eighty-five and upward."

PROF. J. R. BUCHANAN.

"The attainable limits of human longevity are generally understood by the medical profession and by public opinion. Instead of the Scriptural limit of three-score and ten, I would estimate *twice* that amount, or 140 years, as the ideal age of healthy longevity; when mankind shall have been bred and trained with the same wise knowledge that has been expended on horses and cattle.

"The estimate of 140 years as practical longevity for the nobler generation is sustained by the number of that age (fourteen, if I recollect rightly) found in Italy by a census under one of the later Roman emperors. But for the race now on the

globe, a more applicable estimate is that of the European scientist, that the normal longevity of an animal is five times its period of growth. Man's growth, however, is not limited to twenty, but to twenty-eight. This gives us 140 years as the age for the best specimens of humanity. This having been done in several cases demonstrates its general possibility in improved conditions."

Why, just to *read* what these learned men say about longevity is almost enough to cause one to feel the renewal of his youth; to feel the blood coursing through his veins as in boyhood—happy, joyous, all-glorious boyhood.

Then, again, according to these same authorites (all of which I strongly advocate), poor old Methuselah had nothing to brag of in regard to age, having stopped short at about *ninety*, while many of his companions were cut short in the flower of their youth.

THE SECRET OF NOT GROWING OLD.

Some one has said that "All forms of matter are manifestations of the one spirit. In eternal thought there can be no discords of sin or disease. Each individual manifestation, through cognizance of its spiritual self, can control the physical atoms of its body by its own will.

"The only cordial in my keeping is the ever-renewing power of correct thought.

"If the personal mind holds a belief in *health*, *youth* and *purity*, the outward form will correspond.

"Sin and disease are discords in the orchestra of nature.

"Health of body, mind and soul are the true harmonies.

"Hold the thought of youth, health and moral beauty; and as is your *mind*, so shall be your *body*."

This is, indeed, a beautiful thought, but I know not whence it came; the spirit and truth I've surely caught, though I've forgotten the writer's name.

This is somewhat on the Scriptural doctrine—an excellent one to ever keep in mind—"As what a man thinketh, that he is."

When old age *does* steal upon us—as it will by and by—may

the words of Shakespeare, as spoken by one of his characters, be true of us:

"Though I look old, yet I am strong and lusty,
For in my youth I never did apply
Hot and rebellious liquors to my blood;
Nor did not, with unbashful forehead, woo
The means of weakness and debility;
Therefore, my age is as a lusty winter,
Frosty, but kindly."

Before leaving the subject of longevity, I desire to give my prescription for preventing wrinkles; those graves of buried hopes; not those wrinkles which come very late in life, when the skin has lost its elasticity, but those wrinkles which the great sculptor *Thought* is chiselling, when *worry* takes the place of *faith*.

THREE RULES FOR PREVENTING WRINKLES.

First—*Don't worry.*

Second—DON'T WORRY.

Third—DON'T WORRY.

PHYSICIANS—DRUGS.

No one can have a higher regard for the intelligent and up-to-date physician than have I, but this class is sadly in the minority.

Unfortunately, the practice of medicine, unlike that of surgery, is not a science. Both are making rapid strides, however, and the doctor of to-day is not the doctor of but a few years ago, when all of his medicine—and all of his knowledge—were in the saddle-bags.

Scarcely a day passes that science is not demonstrated by surgery in the skill and accuracy of its wonderful work. Scarcely a day passes that does not demonstrate the unscientific and inaccurate and almost bungling work of medicine, even in the hands of a thoughtful and conscientious physician.

It is utterly impossible to tell positively the exact result of *any* medicine taken into the stomach, owing to the chemical changes through which it must pass. It may work like a charm with one person, but not have the slightest beneficial effect upon another.

I have no doubt that every well-established physician will agree with me that the majority of persons take entirely too much medicine; and, what is still worse, they empty bottle after bottle of advertised nostrums, the nature and result of which they are totally ignorant.

A physician should be paid for his *counsel.* He is as much entitled to it, often much more, than is the lawyer. Nine times out of ten he is the *better* physician that will give you little or no medicine, but instruct you how to remove the cause.

Medicine never cured any one. Its use is to aid Nature, and as soon as that is done, it should be discarded. In the first place it would not be needed if Nature's laws were not violated, whether knowingly or otherwise.

Dr. Titus, counselor at the Court of Dresden, says that "three-fourths of mankind are killed by medicine."

Of course he does not mean wholly by mecicines prescribed by physicians, but by that indiscriminate use of which I spoke, when one buys on the strength of an advertisement—the *only* strength connected with the medicine.

Dr. Morrell MacKenzie said: "If there was not a physician nor a drug in the world, the rate of mortality would be less."

Strong statement this, especially when we consider the fact that it was uttered by an eminent physician near the close of a life-long practice. He was an eminent *specialist,* and died of the very disease the cure of which had given him a world-wide reputation.

I do not wonder that the old lady said she did not want a practicing physician, but would prefer one who was *through* practicing.

I am thoroughly convinced that if the whole tale could be told of the destruction of health and life by false and narrow medical theories, it would rival the horrors of war.

We are compelled to regretfully admit that the success attending the phyiscians' practice has not been wholly commensurate with the zeal and energy spent in the practice. And yet, light begins to break upon this heretofore clouded condi-

tion of affairs; for at no time in the history of our nation have such developments been made as within the last few years.

We are all familiar with the expression "Patience on a monument;" but I am inclined to think that there are still some physicians who put *their* patients *under* a monument.

I remember reading of a noted physician who attributed all diseases to one of three causes, viz.: "Ignorance, carlessness, Providence."

That physician was both "ignorant" and "careless" in making such a serious charge against "Providence."

Were illnesss Providential, then it would be open rebellion against Him to take medicine for restoration, and every physician would be an enemy to His Divine will. God suffers many things that He does not *will.*

All laws are God's laws, and they are immutable. If we break a law of Nature (God's laws), we must suffer the penalty. Ignorance is no excuse for the violation of a law.

Nature is unrelenting and she places her mark of disapproval on all who disobey her. The physical sins of a life time cannot be atoned for in a few hours; and it should also be remembered that *there is not even vicarious atonement for sins against Nature.*

Instead of placing the three causes of disease as *carelessness*, *ignorance* and *Providence*, I am inclined to place them as *carelessness*, *ignorance*, and *physicians* and *drugs.*

No reputable physician will feel hurt at this statement, unless, as is often the case, it is the *truth* that hurts.

Not long ago, in one of our large cities, a physician said to me while I was with him on his rounds: "I must stop here a moment to see this sick child, and consult with the regular physician."

When he came out he said: "Just in time. He had been doctoring for the wrong disease; in his haste and immense amount of practice he did not carefully diagnose the case; hence, was giving the wrong medicines, and I think she'll pull through."

This reminds me of an incident that occurred in Washington

city. Passing down Pennsylvania Avenue, on the way to the Capitol, in company with a resident of that city, the following conversation took place:

"Did you notice that gentleman to whom I spoke just now?"

"Yes; any one of note? Congressman? Senator?"

"No. A doctor. He saved my life when all others gave me up."

"Then he must be a man of note; a man of prominence."

"No, he is but little known outside of a small circle of admiring friends."

"Then he must be skilful."

"I am not sure of that either. All that I know is that he saved my life."

"That is strange. How do you account for it that he saved your life after you had been given up by leading physicians; and yet he is not prominent, not of note, not skilful, you say. How do yon account for that?"

"Why, when the others gave me up and said there was no hope, my friends sent for him."

"Well?"

"Well, *he didn't come.*"

My observation has since led me to believe that this may nave been a fortunate circumstance in the life of many a one; yet, I would not, for any reason whatever, underrate the medical profession.

Perhaps I feel these things more keenly in consequence of my mother's death being caused by the ignorance and carelessness of a physician; and my father (who should have lived to a full five score) was cut off at three score and twelve as a result or following a physician's advice for several years. Other physicians tried to cure what a former physician caused.

Little need shall we have of the physician, and still less of drugs, when we live as we should; that is, when our grandmothers and grandfathers live as they should. For, in fact, that is where we should have to begin.

However, we are liable to accidents and unavoidable ex-

posures; but, barring these, we *should* be free from not only many but all the ills that flesh is heir to.

So much have I had to say concerning the body being properly fortified against disease, and, in a measure, that there exists little or no need of disease, that I may be thought to be championing the cause of

CHRISTIAN SCIENCE.

But no Christian Scientist will ever lay that charge to my door, for I violate the first principle of their belief in admitting that we have a body. The very word *physical* is a bugbear to them.

A prominent teacher of Christian Science was in one of my classes in physical training. She readily took all the exercises, but whenever I spoke of the object being to benefit this or that part of the body, she immediately "treated" herself; that is, treated away from her mind the *falseness* of my theories.

I am ready to admit the beauty and the truth of much that is taught in this so-called science, but I am as ready to assert and prove that the foundation is false; the pretensions of the so-called founder are false; the name is a misnomer, as the teachings are in no way compatible with the teachings of Christ.

Christ healed the body as well as the soul, acknowledging the body as the temple of the soul. The very denial of the existence of the body is not only un-Scriptural but un-Christian.

"*Beloved believe not every spirit, but try the spirits whether they be of God, because many false prophets are gone out into the world. Hereby know ye the spirit of God. Every spirit that confesseth that Jesus Christ has come in the flesh, is of God. Every spirit that confesseth not that Jesus Christ is come in the flesh, is not of God, and this is that spirit of Antichrist whereof you have heard that it should come.*"

There is nothing *scientific* in healing that which, in reality, does not exist; nor in denying the existence of that which is

known and felt. It is *unscientific* because it ignores the fact of man's physical life as is taught in science.

Disease is not imaginary. Many diseases, however, have their origin in the mind, but the disease is an actuality. Both cause and effect should be removed; then to avoid a recurrence, avoid the mental inharmonies through which the physical inharmonies came.

"The fashion of mental healing by resolutely ignoring disease, fixing the mind upon the conception of perfect health and the all-pervading benignity of the Deity, is not so irrational in *essence*, but it is mingled with so much of metaphysical nonsense in the denial of the existence of disease."

The author (?) of "Science and Health" claims originality. Even goes so far as to say: "No human tongue or pen has suggested the contents of this book."

Even she knew the statement to be false or it must be admitted that she displayed woful ignorance. The hand that guided the pen of the unfinished manuscripts that fell into her possession had loosened its grasp. The writer had succumbed to that which existed only in his mind. He was not dead; he only *thought* he was dead. The acknowledged author was languishing upon a bed of sickness. She was told she must die. She made up her *mind* she wouldn't. (So far, so good; would there were more.) Disease was a *myth*. She arose. She took the unfinished writings, added thereto from the teachings of Mme. Blavatsky, published a book, proclaimed to the world that she was infallible, that the writings were original; formed classes to heal imaginary ills; saw a mine of wealth. It was in her *mind*, but it soon materialized. She taught *Christian* Science; so much science for so much money. The Christian principle was forgotten—"Freely ye have received, freely give."

The principle—the original (?) principles taught in her book—are older, many hundred years older than the Christian era.

In a translation of the Vedic poems from the Bhagavad Gita, verse 15, chapter 2, you may read the following:

"The only real existence is Eternal existence, that of spirit.

Matter does not really exist, but is merely the production of Maya—the mystic power by which the Supreme Being has created an *illusive* and temporary matter, which seems to exist but does not really do so. There is no real existence for matter, nor non-existence for spirit, which alone really exists."

There you have, in the Brahminic mysticism, the principles of the Christian Science. What an absurdity to introduce it as a product of the nineteenth century.

Let us confront one other statement: "Disease is purely imaginary, a phantom created by the mortal mind."

I am pleased to quote J. S. Loveland's answer to this fallacy:

"The lower animals, as well as man, succumb to these influences. Is it 'the fabulous creation of the mortal mind' when a horse dies of consumption or colic? Is disease a myth? Is there no such thing as matter? Has disease nothing to do with the physical organization? Is it purely an affection of the mind?

"Those Christian Scientists who *do* any good are, in reality, magnetic healers, denying the source and character of the power they use. Many of them do not know *how* mind acts upon matter. Apparently they are profoundly ignorant of the function of the nerve *cura*, or vital force. If they *did* know, they would readily see that they are using the old well-known methods of magnetic operation. Magnetists, years ago, operated upon their subjects when miles away. Why not? The medium of mental use is universal. Mind acts upon mind and matter, because the means of actual touch is substantially unlimited. The mind, in the case of mental telegraphy, acts thousands of miles away from the body, because it has an agent of force to work with (odic force).

"One can project his vital energy itself, and can thus influence the nerve-force of another."

To those who are unfamiliar with the power of psychological influence, the foregoing criticism upon Christian Science may seem almost as mysterious as the teachings of the science, but to those who have investigated telepathy, psychology, etc., the remarks will be very clear.

I dismiss this subject of Christian Science with the terse saying of the Rev. Savage, D. D., of Boston: "When the Christian Scientist says 'there is no matter,' then it's no matter what he says."

While much may be taken from so-called Christian Science that will prove exceedingly helpful in *the care of the body*, let the reader choose that which is in accord with good common sense, acknowledging the existence of the material, but learning, as he may from said teachings, that *mind* is superior to matter.

The little I have had to say of this subject is merely sugges tive, and is given to the reader that he may not lean on a broken staff.

CATCHING COLD.

Don't do it. Don't let the cold catch you. It is impossible to catch cold so long as a healthy condition of the skin and an even temperature of the surface of the body are maintained.

The slightest warning that Nature gives you should be heeded at once. If you get the snuffles, the forerunner of a cold in the head (a cold always settles in the *weakest* place), you should take a brisk walk or run, but be sure to keep the mouth firmly closed. If you are so situated that you cannot do either, then breathe deeply and rapidly until your body has passed from a negative to a positive condition.

Equilibrium is health, the loss of it is disease. Keep up your vitality to the proper point and *no* disease can touch you.

To the proper point? Aye, there's the rub. We get careless, and when we are unfortified the enemy attacks us. The moment the body becomes negative, below a certain point of vitality, we become subject to encroachment, especially of colds, and then the most vulnerable points—throat, nasal passages, lungs, etc.—are attacked.

THE THROAT.

Do not muffle up the throat when winter comes. Nature does not *need* the precaution, but if taken, she will resent the

non-continuance. The protection of the throat rests in keeping the mouth shut, thus protecting the lining of the throat. The back part of the neck should be protected from even the slightest draught of cold air. If out of doors turn up the coat collar in the back; the same when indoors, if subjected to a draught. Do not sit unconcernedly in a hall or church or theatre if you are exposed to a cold current of air upon your back. 'Twere better, by far, to face it. 'Twere better still to change your seat or take some measure to avoid the effect if the cause is not removed. Do not wait until you are chilled. That is Nature informing you that you did not heed her first alarm. 'Twere better to momentarily disturb the lecturer, preacher or actor than to incur any risk that may prove fatal. "Charity begins at home." "To yourself be true." "Prevention is better than cure." Obedience to Nature's demand is better than the sacrifice that *must* follow any non-conformance with her laws.

CHEST AND LUNGS.

As with the throat, so with the chest; the caution, as to the matter of protection, is usually misapplied.

An erroneous notion prevails that if the chest is well protected from cold no harm will come. Extra warmth is necessary at the *back*, over the situation of the chain of nerves known as the sympathetic, whose purpose it is to regulate the supply of blood to the various organs of respiration and digestion and to keep those organs in co-ordination.

It is, undoubtedly, by draughts on the back of the neck that colds, or inflammation due to colds, are most frequently taken.

See to it that your *chest* protector is a *back* protector. Who ever heard of "the cold chills" running down one's chest.

Again let me impress upon you the necessity of keeping up a certain temperature of the body in order to avoid catching cold.

It is said that a little woolen clothing around the chin and neck is more productive of warmth than five times the amount elsewhere. This is probably due to the fact that the circulation and evolution of heat are at once increased and sent down

ward. This may be demonstrated by having some one place one hand around your chin and the other around the occipital base.

In extremely cold weather one may notice the effect of increased warmth by burying the chin, so to speak, in the fur wrap or boa or muff, as ladies are frequently seen to do.

In preventing cold, especially in warm weather, a word of caution is especially necessary concerning the too sudden

CHECKING OF PERSPIRATION.

Physiologists have said that if a few drops of the blandest fluid in Nature are injected into a blood vessel against the current, death is an instantaneous result.

Millions of canals or tubes from the inner portion of the body open their little mouths at the surface, and through these channels, as ceaseless as the flow of time, a fluid containing the wastes and impurities of the system is passing outward and is emptied out of the skin.

This fluid must have exit or we die in a few hours. If it does not have vent at the *surface* of the body it must have some *internal* outlet. Nature abhors *shocks* as she does a *vacuum*. Heat distends the mouth of these ducts and promotes a larger and more rapid flow of the contained fluid; on the other hand, cold contracts them, and the fluid is at first arrested, dams up and rebounds.

If the purest warm milk injected against the current kills in a moment, not from any chemical quality, but from the force against the natural current, there need be no surprise at the ill effects of suddenly closing the mouths of millions of tubes at the same instant, causing a violence at every pin-head surface of the body.

If these mouths are gradually closed, nature has time to adapt herself to the circumstances by opening her channels into the great internal waterways of the body, and no harm follows. Hence the safety of cooling off slowly after exercise or being in a heated apartment, and the danger of cooling off rapidly under the same circumstances, familiarly known by the expression "checking perspiration."

The result of closing the pores of the skin is various, according to the direction the shock takes, and this is always to the weakest part; in the little child it is to the throat, and there is croup or diphtheria; in the adult, it is to the head, giving catarrh in the head or running of the nose; to the lungs, giving a severe cold, or if very violent, causing pneumonia, or inflammation of the lungs themselves; or pleurisy, inflammation of the covering of the lungs; to the bowels, causing profuse and sudden diarrhœa; or to the covering of the bowels, inducing that rapid and often fatal malady known as peritoneal inflammation; if the current is determined to the liver, there is obstinate constipation or bilious fever, or sick headache.

Hence a cold is known by a cough, when perspiration is driven inward and is directed to the lungs; by pleurisy, when in the lining of the lungs; by sick headache or bilious fever when to the liver, etc.; diarrhœa or constipation when to the bowels and liver.

To avoid colds it is only necessary to avoid closing the pores of the skin either rapidly, by checking perspiration, or slowly, by remaining still until the body is thoroughly chilled; that is, until the pores are nearly or entirely closed by inaction in a cold atmosphere or room.

In the matter of health, these suggestions are of incalculable importance, especially as regards the *care* of the body.

BATHING.

Every well informed athlete takes a sponge-bath after vigorous exercise.

The proper *care of the body* demands a daily sponge or hand-bath, night or morning. This is greatly improved by dissolving in the water a handful of salt—table, or rock, or sea salt; the latter being preferable.

Cold water should be used by those having sufficient vitality; otherwise, warm or lukewarm water.

A hot-water tub-bath should not be indulged in more than once a week, and then on retiring. If one is obliged, after

taking a hot-water bath, to go out into the open air, he should follow such a bath with a rinsing of the body in cold water, and then a rub-down, *but not too vigorous*.

If you get overheated from the rubbing you are just as liable to catch cold as being overheated from the warm-water bath. One's body had better be *wet* with the cold water of the bath when the clothing is put on, than to be wet with perspiration from an excessive rub-down. Bathing is an art, but the care of the body *after* bathing is even more than an art, and the care of the body after excessive perspiration still more of an art.

My own experience may not be out of place. Closing my lecture on "Physical Training" with an exhibition of heavy-club swinging, I am, as a consequence, quite warm. As a usual thing there is no opportunity for a bath until I reach the hotel. Therefore, I do not dress immediately, but walk about upon the platform, chat with friends from the audience as they are passing out, etc., etc. (do not misinterpret the etcetras); this I do until I have ceased perspiring. I then am in a condition to dress, the extra amount of clothing *keeping* me warm instead of *making* me warm. This has been my custom for a little over a quarter of a century, and the result is I have never caught cold—or the cold caught me—no matter whether the mercury was up to 90 or 100 or had dropped down to 20 or 30 below; summer or winter the same principle holds good.

To dress immediately after exercising is like blanketing a horse when it is fairly steaming. The dry blanket becomes wet, the horse becomes cool and is often chilled by the wet blanket; whereas, if the blanket were placed upon the horse just as he ceased sweating, the dry blanket would keep him warm, and would so act upon the surface of the body as to prevent the reaction that is likely to follow when the horse has ceased sweating and the body comes in contact with the wet blanket. 'Tis true, the blanket absorbs the moisture, but this very absorption causes the mischief.

The necessity of frequent bathing and change of undercloth-ing is evident from the fact that through the perspiring glands of the skin is exhaled forty ounces of vapor each day; this

vapor being loaded with the waste and impure matter which the lungs cannot remove.

Do not wear any undergarment at night that has been worn during the day. It contains the excretions of the body, which are likely to be reabsorbed by the system; therefore, it is necessary that all clothing worn during the day should be thoroughly aired at night, and all clothing worn at night should be thoroughly aired during the day.

When taking a hand or sponge bath it would be well to put into the water a handful of sea salt. You may, by so doing, have a sea bath at home and thus avoid many of the discomfitures of seaside bathing; besides, you can have it at all seasons of the year.

I know of nothing more invigorating than a sea-salt bath. It is almost impossible to catch cold after a sponge bath of sea salt and cold water. The pores of the skin take it as eagerly as if so many thousands of hungry mouths were opening for a veritable feast.

The efficacy of salt is so little known, that is, its real value in so many, many ways, that I purpose giving herewith some of the most notable uses to which it may be put.

THE USES OF SALT.

Half a teaspoonful of common table salt dissolved in a little cold water and then drank will instantly relieve "heartburn" or dyspepsia.

If taken every morning before breakfast, increasing the quantity gradually to a teaspoonful of salt and a tumbler of water, it will, in a few days, cure any ordinary case of dyspepsia, if, at the same time, due attention is paid to diet.

There is no better remedy than the foregoing for constipation.

As a gargle for sore throat it is equal to chlorate of potash; besides it is entirely safe and may be used as often as desired, and should a little be swallowed each time, it will have a beneficial effect upon the throat by cleansing it and by allaying the irritation.

In doses of one to four teaspoonfuls in half a pint to a pint

of tepid water, it acts promptly as an emetic, and in cases of poisoning it is a remedy that is always on hand.

It is an excellent remedy for bites and stings of insects.

It is a valuable astringent in hemorrhages, particularly for bleeding that follows the extraction of teeth.

It has both cleansing and healing properties, and is, therefore, a most excellent application for superficial ulcerations.

Salt water for the eyes; salt water for the hair; salt water for chapped hands and face; salt water for catarrh. By this time you will be so well salted that, paradoxical as it may seem, you will be ever fresh.

CATARRH.

Just a word of caution, however, as to its use for catarrh. Do not *snuff* it through the nostrils. Do not snuff *any* liquid through the nostrils, as it is liable to enter the Eustachian tube and thus cause deafness. It will cure the catarrh, just the same, but it will be done at the expense of the hearing. To avoid this result, use a douche or atomizer, and have the water quite warm, at least tepid.

An ounce of borax dissolved in one quart of rain water is also an excellent remedy for catarrh. It is preferred by some because it is much milder than the salt and water, more soothing and just as efficacious.

A CLEAR COMPLEXION.

Salt water, especially sea salt and water will be found very beneficial for producing a good condition of the skin, and give to the face a good, healthful glow, but soap and water and vigorous rubbing are also essential.

Allow the salt water to remain on during the night, or if used in the morning then for a few hours thereafter before soap is used.

Mr. D. L. Dowd, of New York City, gives some timely suggestions concerning the care of the complexion:

"Most ladies have a wrong idea of taking care of the complexion. After washing the face, instead of rubbing it hard with the towel until it is perfectly dry and smooth, they simply

pat it with the towel. This is one of the surest ways of spoiling a good complexion. The skin (when in health) is a very active agent, throwing off a great amount of the waste matter of the body, and is also constantly exuding an oily fluid which dries on the surface. Unless we use good soap with plenty of hard rubbing, it is not very easily removed and, consequently, the face and hands, being exposed, are liable to chap. Pimples, and what are commonly called blackheads, come from the same cause.

"Blackheads are commonly supposed to be a kind of skin worm. This is erroneous. The skin being inactive, the waste matter is not thrown from the oil glands, and the blackhead is caused by dirt adhering to the oily substance of the glands.

"One does not like to admit that his face is dirty, but he admits that he avoids the use of soap and the rubbing of the face hard and dry, because it is too red. That is exactly why the face, in many cases, *is* red and sore with pimples. It has not been sufficiently rubbed, else the circulation of the blood in those parts would be stimulated, thus causing such a healthy action of the skin as to throw off the refuse matter."

SLEEPING.

Every hour before midnight is worth two after that time, owing to the change in the magnetic forces. Whether we wish to admit it or not, there is surely much reasoning in the effect of the magnetic currents upon the human system.

Dr. E. D. Babbitt, of New York, claims that "the position in sleeping should be with the head mainly to the North in the Northern Hemisphere, as the cool electrical forces which sweep the magnetic needle toward the North magnetic pole are needed in the brain, the hottest part of the body.

"Many sensitive, nervous systems have been almost wrecked by long continued sleeping with the head to the South or West."

I think that a few nights' trial will convince any one that the position of the head of the bed has much to do with obtaining a good night's rest.

The question is often asked as regards the lying on the right or left side. It is a well-established fact that it is better to lie on the *right* side, especially if there is undigested food in the stomach. Lying on the right side is also less likely to crowd the heart and otherwise interfere with its proper function. A lawyer, however, can lie—on either side.

In "Physical Training Simplified" may be found my *modus operandi* for acquiring the habit of going to sleep in two minutes. This practice is especially intended for the siesta—the afternoon nap—the great mind and body restorative. Under the head of "Insomnia," I shall treat especially of various methods of producing or inducing sleep at *night;* but I would not have my readers miss the great blessing of a fifteen-minute nap. It will add years to your life; it will add life to your years.

INSOMNIA.

What a curse to humanity! What a self-inflicted curse! All so-called curses are but the result of one's own indiscretion, possibly that of another, the trouble being caused by the violation of some law of Nature.

Every evil is but a perverted good. Nothing evil was ever created as such. Sleep is the greatest restorative that Nature can give. Then let us woo her if in any way we have wounded her. I give herewith a few thoughts bearing on this important subject.

We should first consider the cause of the insomnia ere we try to remove the effect.

In the majority of cases it is due to an over-activity of the brain, whatever may be the cause otherwise. It may arise from business excitement, anxiety, worry, etc., etc.

It should be remembered that the brain, not being a muscular organ, must rely upon bodily activity to draw down the blood that has been used and make room for new. It is this congestion, especially at the base of the brain, that causes insomnia, headache and often insanity.

This bodily action is not only necessary for those troubled with insomnia, but it is just as essential for the brain-worker, for unless the supply of blood to the brain is frequently changed in this way, the organ loses its capacity for vigorous thought.

Benjamin Franklin's method for curing sleeplessness was to get up, turn back the bed clothing to let the bedding air, and then walk about a few moments. In doing this the blood is partially drawn from the brain, but I do not think the remedy is sufficiently vigorous unless for an ordinary case.

My own method is the same in purpose, but greater in degree. It consists of a special physical exercise given in my "Physical Training Simplified." It is given there, however, with a view of resting the brain-worker and preparing him for continuous effort. I shall give it here as a preventive or curative for insomnia.

Just before retiring, stand erect, with the weight of the body mainly upon the ball of the foot, the heels bearing little or no weight. Rise slowly, as high as possible, and descend slowly, just touching the heels lightly to the floor. Continue this exercise until you feel the congestion at the calf of the limb. Then kick vigorously a few times; then rise again until you feel the congestion once more, and then when the muscles of the calf "fairly ache," rise two or three more times until they *unfairly* ache. Preparatory to this, walk about the room on your toes while you are disrobing.

Take this exercise (from 40 to 100 times) every night, whether you feel the immediate need or not. It is, also, the best exercise that can be taken for the development of the calf of the limb and for one set of muscles in the thigh.

This exercise, if persistently practiced, will positively cure insomnia; but for the benefit of those who are averse to *work* or are not *able* to do so (more especially for the latter), I herewith give a pleasant substitute:

A cup of hot milk sipped slowly, while still hot, just before going to bed, is a better sleep-producer than all the opiates known to *materia medica*.

To give the remedy its utmost potency, no food should be taken with it, not even a tiny wafer.

The hot fluid taken into the stomach brings about an increased activity of the blood vessels of the stomach, thus causing slight temporary congestion, which relieves the blood vessels of the brain and thus induces natural and refreshing sleep.

In lighter forms of sleeplessness it will be found that a hot-water foot-bath is very effectual in obtaining the desired result.

Here's another method, the beneficial result of which is beyond question with many forms of insomnia:

"It is a common expression that to take food immediately before going to bed and to sleep is unwise. Such a suggestion is answered by a reminder that the instinct of animals prompts them to sleep as soon as they have eaten; and in summer an after-dinner nap, especially when that meal is taken at mid-day, is a luxury indulged in by many persons. Neither darkness nor seasons of the year alter the conditions. If the ordinary hour of the evening meal is six or seven o'clock and the morning meal at seven or eight o'clock, an interval of twelve hours or more elapses without food, and for the persons whose nutrition is at fault this is altogether too long a period of fasting. That such an interval without food is permitted explains many a restless night and much of the head and backache, and the languid, half-rested condition on rising, which is accompanied by no appetite for breakfast. This meal itself often dissipates these sensations. It is therefore desirable, if not essential, when nutriment is to be crowded that the last thing before going to bed should be the taking of food.

"Sleeplessness is often caused by starvation, and a tumbler of milk, if drank within the middle of the night, will often put people to sleep when hypnotics would fail of their purpose.

"Food before rising is an equally important expedient. It supplies strength for bathing and dressing, laborious and wearisome tasks for the underfed, and is a better morning 'pick-me-up' than any hackneyed tonic."

There is one caution, however, that I would append to the

foregoing, and it reminds me of the sound advice always given by a prominent physician in Trenton, N. J., viz.: "Never take medicine only as a necessary evil." So I would say: Do not eat at bedtime nor in the middle of the night unless you feel the needs; and those needs coming from a natural, not a depraved appetite.

THE CARE OF THE FEET.

Though the feet and the head are far apart, they have much to do with each other, and the care of the feet has much to do with both the mental and physical condition of one's system, hence should receive special attention in the consideration of the care of the body.

The feet should be kept dry. If they perspire freely the hose should be changed once or even twice a day, especially if one is subject to or catches cold easily. Nervous, excitable persons are very prone to clammy, cold, damp feet.

We speak of the feet perspiring, but it is not really a perspiration, nor is it increased by warmth, but rather by the cold. It is, instead, the result of a wakeful nervous condition, and the excretion is oftener the product of the worn-out brain and nerves. It is always worse when the mind is most excited. Public speakers, singers and actors suffer much from it, and it predisposes them to catch cold. It troubles least when one is idle or quiet. A few minutes' sleep will at any time dry the soles of the feet made clammy by excitement. This ought to show that the feet do not perspire from heat; hence the folly of changing woolen for cotton hose.

Clammy feet are a common cause of sore throat, enlarged tonsils, swollen glands, catarrh and all that class of troubles.

Business men often catch cold without being able to account for it. They go home after a day of mental excitement, the soles of the feet clammy and damp, and they think they are taking the proper precaution by simply changing their boots or shoes for slippers; but they make a mistake, serious and sometimes fatal, by still wearing the damp hose. Such a change

should always be accompanied with dry hose. So much trouble? Yes, 'tis true, but it saves a doctor's bill and *more* trouble.

COLOR OF THE CLOTHING.

Has color of the clothing anything to do with the care of the body? Most assuredly, when the body is exposed to the sun's rays. The sun has its effect, beneficial or otherwise, on everything in the universe. Why should the human body be excluded?

The physician tells his convalescent patient, in fact, all patients able to be about, to spend as much time as possible in the sunlight; but the essential difference between sunlight and sunheat is not always impressed upon the mind of the patient—not always impressed upon the mind of the physician.

There are certain cases in which the person needs the *heat* of the sun, but there are *more* cases, many more, in which the person needs the *light* of the sun.

Wearing black in the summer, when exposed to the rays of the sun, is equivalent to living in a cave, as far as benefit to the body is concerned, unless excessive *heat* is the desired object.

Light-colored clothing should be worn, especially in the heat of summer, if the body is to be benefited thereby.

Black, when exposed to the sun's rays, *absorbs* the *light*, draws and *radiates* the *heat*.

White, when exposed to the sun's rays, *transmits* the *light* and *reflects* the *heat*, hence white or light-colored clothing is preferable, because it is the *light* of the sun that the human body needs.

I have made several practical tests of this matter of color as a transmitter of light and heat. I will mention two of these experiments:

From Hotel Ven Dome, at San Jose, California, to the Lick Observatory on Mount Hamilton, is twenty-eight miles by

road. On the 29th of April, 1890, I traversed this distance on *foot;* not by the trail, but by the same road as taken by the stages.

During the entire distance, and the time occupied in walking it, I was exposed to the sun's rays; not only the direct, but those terribly trying *indirect* rays reflected from the side of the mountain.

I first tried a dark-colored coat, though light in weight, but the heat was intense. I then exchanged (at the end of about ten miles) white for black. The effect was marvellous. Nothing short of actual experience could make one thoroughly understand the difference. I was not even uncomfortable from the heat of the sun during the remaining eighteen miles. I *could* not be; for the white reflected the heat and my body was benefited by the light of the sun.

I wore a light-colored cap; hence the head was protected from the heat. But I experienced another difficulty, which afforded another and excellent opportunity and proof of my theory. The side of my face next that of the mountain was being burned by the reflected rays therefrom. I dropped a white handkerchief over that side of the face, placing one end under the cap. From that time on I suffered not the slightest discomfiture. Had I not taken this precaution, my face would have ben burned almost to a blister, owing to the prolonged exposure.

As another test: Some years ago, in Detroit, Mich., I pegged down a yard of *black* muslin on a nice plot of grass; by its side a yard of *white* muslin. I left them there during the month of July. At the end of the month I removed both pieces. Underneath the *white* cloth, which had reflected the heat and transmitted the light of the sun, the grass was as green and as fresh as on the day it was covered. Underneath the *black* cloth, which had radiated the heat and absorbed the light of the sun, the grass was dead, perfectly parched; not a single spear of green grass.

Deep yellow or orange color, when worn as a covering for the head, or as a lining to a hat is a preventive of sun-stroke.

(One must not confound over-heating of the blood with that of sun-stroke.)

An overseer in New Orleans told me that as he was exposed to the sun's rays all day long, and had trouble with his head in consequence, that he would try the efficacy of the orange-colored lining to his hat. He did so, even lining the brim. In a few days he came to me, saying: "At first, I thought it my imagination, but changing back one day to the hat I was accustomed to wearing, I was thoroughly convinced that the change for the better and the prevention of the former trouble were, indeed, due to the proper covering as a protection to the sensitive brain."

This is worthy of further consideration and additional proof. These that I have stated have been personal experiments; let us take an illustration with which every one is familiar; so familiar that there are few persons who have ever asked the why or wherefore. Let us see:

Did you ever receive the proof of a photograph in a white envelope? What has this to do with the effect of the sun upon the brain? It proves the point in question.

The *brain* is a sensative plate, just as sensitive as that used by the photographer. It, too, gets impressions upside down quite frequently. Then, too, the brain is affected by the light of the sun very much as is the sensitive plate of the photographer, or the proof from the sensitive plate before it passes through the toning bath.

The yellow envelope preserves the proof just the same as the yellow covering for the head protects the brain. Why yellow? Because it is the only color that acts as a protection. How does it protect? By filtering from the rays of the sun the chemical properties that are destructive to negative, proof and brain.

Why did the photographer used to have a "dark room" in which to look at the negative; and also to prepare it to be shown to the sitter? He, working in the dark, figuratively, worked in the dark literally; that is, he admitted only artificial light, as he knew that daylight (unsifted) would be destructive to his chemicals.

Go into the photographer's so-called dark room now. It is flooded with daylight, but that light is transmitted through orange-colored glass, or a combination resulting in those colors.

When in a photographer's studio, ask to see his chemically prepared paper from which the proofs are made. You will find it—wherever it may be—protected from the light of the sun by a protection of orange-colored cloth.

There was a time, about eighteen years ago, when blue-glass healing was a craze. The principle of healing with colors was all right, the fault was in a lack of discrimination; that is, in using only one color.

I saw a man in New Hampshire taking the blue-glass treatment. He was suffering with paralysis. Think of it! A man afflicted with paralysis taking the rays of the sun through blue glass. He would have experienccd about the same benefit and almost as much comfort (?) if he had been placed in a moderately cool refrigerator.

Blue is cooling, soothing; but that was not what he needed. He needed red glass treatment. Red is vital, blue is mental. Red is the life-giving principle, the blood.

Blue glass should be placed in the window of the sanctum sanctorum of editors, literary men and all who need a cool head and cool judgment. Not that such persons ever get *hot*-headed, but it is a good preventive.

I am a firm believer in chromopathy (healing with colors). I am a firm believer in all of *Nature's* remedies. Dr. E. D. Babbitt, of New York, in his "College of Finer Forces," has done much to promulgate these truths, to further the cause and to thoroughly demonstrate the medicinal effects of the rays of the sun through various colored lenses filled with water; also the effect of the water when taken internally; also sun-baths under different colored plates of glass.

Druggists know that certain medicines are excitants, others soothing, etc. They also know (or should) that each medicine, according to its particular properties, would the better retain its power if kept in bottles or packages of appropriate color.

A druggist in Ohio told me that he lost one whole case of

goods because they were exposed to the light for only a short time. On inquiry I learned that the bottles were of the ordinary kind (white). I also learned that the ingredients were of such a nature that, had they been put in amber-colored bottles, they could have been placed upon the shelves and exposed to the light with profit—profit to the medicine and profit to the dealer.

This is a subject of intense interest, and worthy of much more consideration than I can give it here. I trust, however, that the foregoing may be an incentive toward a thorough investigation.

BREATHING.

The first essential is fresh air ; the next is to know how to use it.

Strange that we do not know how to breathe? No. Our natures become perverted. So few persons know the real pleasure and benefits that come from deep, full breathing. How few, indeed, really *live*, but instead only *exist*, and many of them drag out a miserable existence at that; while many of the ladies simply *stay*.

In "Physical Training Simplified" I have, under this heading, dwelt so fully upon the proper manner of breathing that I shall pause here only long enough to say that all breathing should be diaphragmatic, not clavicular. There should be movement of the upper chest. It should be raised and *fixed*, but this must be the result of muscular action and not of breathing.

As long ago as 1842 in the "Medical Times and Gazette," Mr. Alex Shaw clearly indicated how the movements of the diaphragm facilitate the flow of blood through the liver brought to it by the valveless portal vein. A deep inspiration sucks the blood into the liver, while expiration expels it with a jet. Therefore, liver indigestion, due to an imperfect supply of oxygen, is thus benefited by the deep, full breathing following physical exercise.

Do not breathe through the lips. The dog possesses the right so to do, but he holds a license from Nature.

The primary function of the nostrils is breathing. There is no occasion for the breath to be taken through the lips. If one knows how to get his "second" breath he will never have occasion to open his lips in the most severe athletic work. To do this simply requires that when you reach that point where it seems that you *cannot get one more breath, get it, but get it with the mouth closed.* The effort may be a heroic one, but it will pay you, and all further effort will be over. But if you open your mouth at this time, you will not be able to close it again until the breathing is normal.

Should the air that is taken through the lips be cool or cold, the results may be disastrous, as congestion of the lungs is likely to follow.

All athletes, especially bicyclists, should guard against the danger of mouth-breathing.

Preservation of the teeth also demands that the breath should be taken through the nostrils. The teeth require moisture to keep the surfaces in good working order. When one breathes through the mouth the mucus membrane has a tendency to become dry, the teeth lose their needed supply of moisture and then come discoloration, toothache, decay, looseness and finally the loss of the teeth.

It is an excellent thing, also, to keep your mouth shut when you are *angry.* Excellent for your health and possibly for your teeth.

Even in sleep the mouth should be kept shut. If you cannot do so in any other way, do as does the squaw with her pappoose —*tie* the mouth shut. The Indian warrior sleeps, hunts and even smiles with the mouth shut, and *always* respires through the nostrils.

Correct breathing will, to a great degree, prevent cold in the head, catarrh, bronchial and lung trouble; in fact, almost any trouble with the upper air passages.

A great many persons imagine that by taking deep inhalations they benefit the apexes of the lungs. Indirectly they do,

but not directly, not fully, not to the extent they imagine or desire. *The apexes of the lungs are filled by exhalation.* Therefore, the manner of exhalation is as essential as that of inhalation. As a *lung exerciser* the air should be *forced out slowly*, so as to *dam it up*, as it were, thus causing it to seek the minutest air cell in the remotest corner of the lungs.

Again, as a general thing, one does not exhale a sufficient amount of air. Special breathing exercises should be taken to not only *fill* the lungs to the utmost, but to *empty* them as nearly as possible, in order to throw out the *dead* air; also to give the air cells greater elasticity.

Exercises in breathing should be special and separate from other exercises. The breathing, during all forms of athletics, should be natural; that is, natural to the condition, position and nature of the work. 'Twere better, in such cases, to have the breathing involuntary.

SPIROMETER FOR TESTING THE STRENGTH OF THE LUNGS.

Height should blow	Cubic inches.
5 ft.	140 to 166
5 ft. 1 in.	150 to 174
5 ft. 2 in.	160 to 182
5 ft. 3 in.	170 to 190
5 ft. 4 in.	175 to 198
5 ft. 5 in.	180 to 206
5 ft. 6 in.	190 to 214
5 ft. 7 in.	200 to 222
5 ft. 8 in.	210 to 230
5 ft. 9 in.	215 to 238
5 ft. 10 in.	220 to 246
5 ft. 11 in.	230 to 254
6 ft.	240 to 262

VENTILATION.

Proper ventilation is especially important for all indoor athletics. Consider the fact that each person should have 2,000 cubic feet of fresh air every hour; that the air twice breathed contains enough carbonic acid gas to extinguish a light; that

every burning gas jet consumes as much oxygen as sixteen persons; then one will readily perceive the necessity of perfect ventilation, not only for the athlete in his training and public exhibitions, but for the athlete and all others in the home, the office, the sleeping room, etc.

One of the sanitary officers of the Board of Health in a certain city calls the average house "a reservoir of poison."

From the fall closing to the spring opening of windows and doors the chances of health are 60 per cent. lower than during the free and early life of summer.

It is of vital importance that an upper opening be kept in every living room, kitchen and sleeping room for the escape of the foul air emanating from life, labor and decay. Rooms that are not provided with an upper register or a window ventilator can be perfectly ventilated by lowering the window a fraction of an inch. This imperceptible opening is a regular life insurance. Cold from this source can be caught only by the mind. If this precaution is heeded all winter long, day and night, there will be a reduction in lung and throat diseases. In consumptive cases this law should be rigidly enforced.

Nearly twenty years ago I observed in the Boston public schools a simple, inexpensive but perfect mode of ventilation. I have since tested it for bedroom ventilating, the test being made during a severe winter, in order to get a better idea of its efficacy.

This ventilator consists of a board the exact *length* of the width of the lower part of the window sash, the width of the board being but four inches. Raise the lower window and have this board fitted so perfectly (as a part of the lower sash) that no air can come in at the base of the window. This, as you will observe, allows a free current of outgoing (impure) air, and incoming (pure) air day and night.

The advantage of this method over that of lowering the window is three-fold; first, a better exchange current is produced; second, you cannot catch cold, even in your mind; third, the finest snow or sleet or rain cannot enter.

By all means, at least by *some* means, have ventilation; such

ventilation whereby you may exchange impure for pure air, and run no risk of catching cold.

We have but to reach out and lay hold of the blessings that Nature has so plentifully given in the air, the earth, the sea.

A BRIEF SUMMARY.

The Care of the Body depends upon good food, fresh air, proper exercise and the avoidance of things hurtful.

Whatever else may be said, whatever system may be adopted, whatever may be the decision on all other points, all reputable athletes, physicians and physical training directors will unitedly agree that:

First—One who takes much exercise should eat nutritious food.

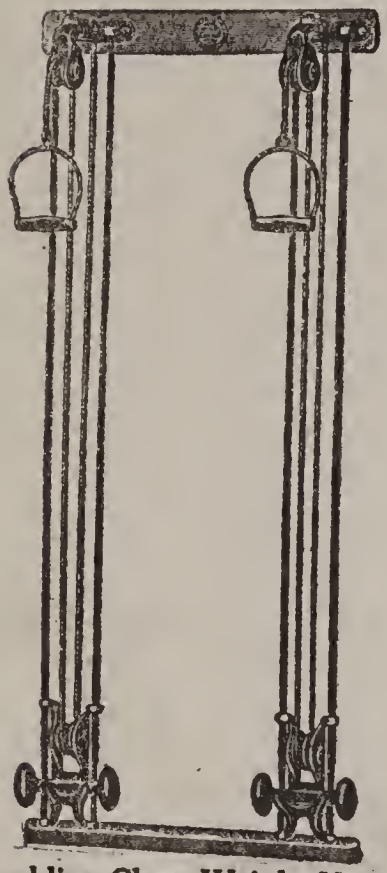
Second—One who eats nutritious food should take much exercise.

Third—One who takes much exercise and does not eat nutritious food is wasting tissue where he does not rebuild it; the waste exceeds the vital supply.

Fourth—One who allows the *outgo* to exceed the *income* (mentally or physically) must inevitably become a mental or physical bankrupt.

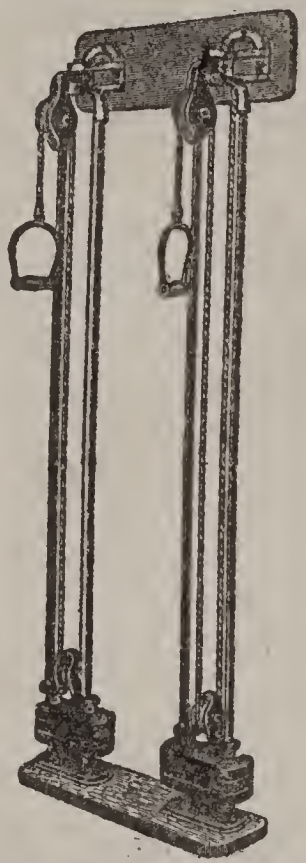
Fifth—Good blood makes good tissue for brain or brawn; good food is necessary to make good blood; good air is necessary to purify it; good habits are necessary to produce the best results.

SPALDING CHEST WEIGHT MACHINES



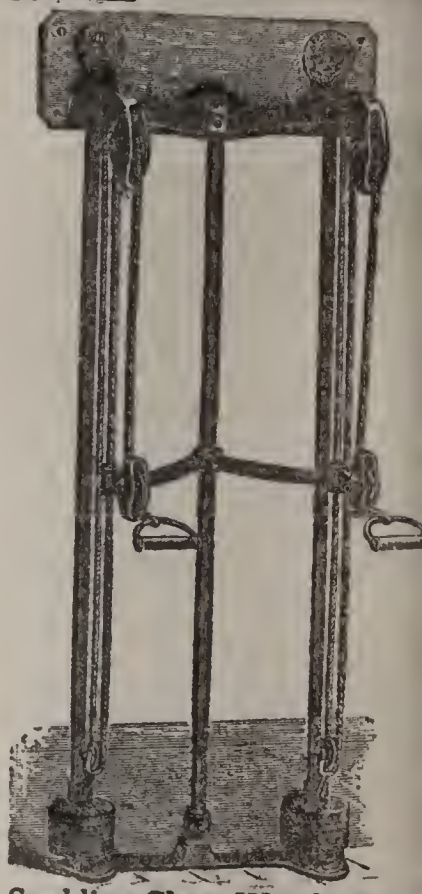
Spalding Chest Weight No. 2

No. 2. A good machine for home use; noiseless and durable. Well made and easy running. Rods are ⅜-inch coppered spring steel. Weights are 5-lb. iron dumb bells, one to each carriage, and may be removed and used as dumb bells. Wall and floor boards are hard wood, nicely finished and stained. All castings heavily japanned. Every part of machine guaranteed free of defect. . . . . Each, $5.00



Spalding Chest Weight No. 12

No. 12. This machine, especially designed for home exercise, will be found high grade in every particular. Cast iron parts are all nicely japanned. The wheels are iron, turned true on centers, and have hardened steel cone point bearings. The guide rods are spring steel, copper-plated. The weight carriage has removable felt bushings, noiseless and durable. Each handle is equipped with 10 pounds of weights. . . . . Each, $10.00



Spalding Chest Weight No. 5

No. 5. Because of its adjustment feature which permits of all lower, as well as direct chest movements, this machine really combines two machines in one, and is particularly suitable where space is a consideration. The various changes are made by raising or lowering the center arm, requiring but a few seconds. Japan finish. Each machine is equipped with 16 pounds of weights. Ea., $15.00
Extra weights for above, 1¼ lbs. Ea., .20

Spalding Head and Neck Attachment

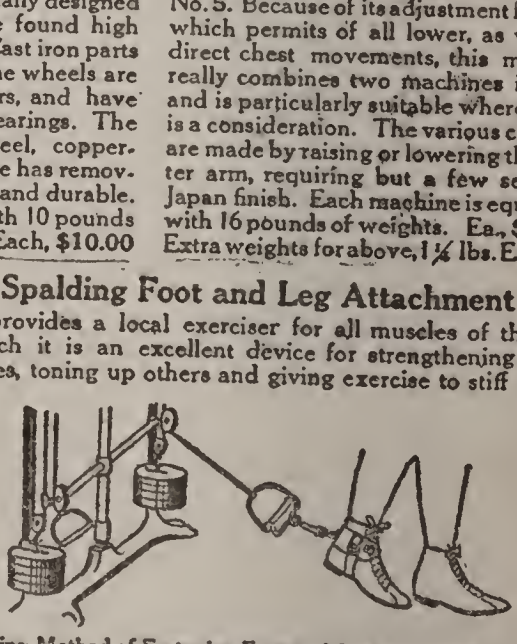
For business men. Overcomes tendency to forward head, due to continuous work at desk. For women, will help develop a nicely rounded neck.

Illustrating Method of Fastening Head and Neck Attachment to No. 5 Chest Weight Machine.

No. 3. Heavy cowhide. Ready for use by simply snapping to one of the handles or both. . . . . Each, $1.50

Spalding Foot and Leg Attachment

This provides a local exerciser for all muscles of the leg. As such it is an excellent device for strengthening weak muscles, toning up others and giving exercise to stiff joints.

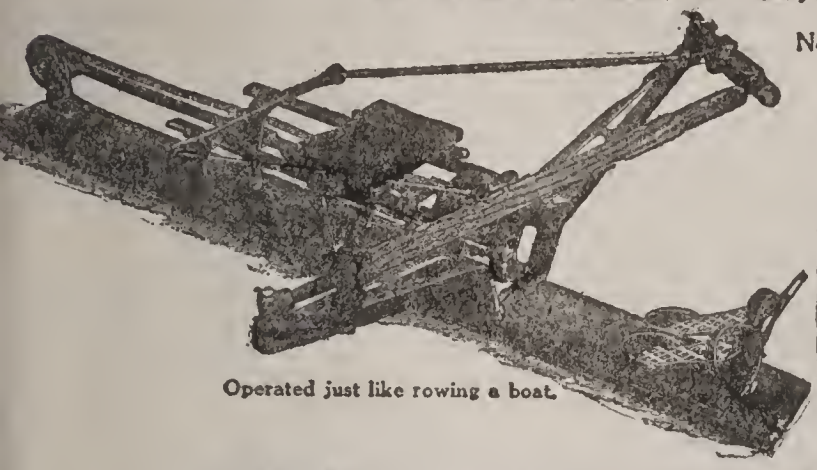


Illustrating Method of Fastening Foot and Leg Attachment to No. 5 Chest Weight Machine.

No. 2. Heavy cowhide. Readily attached to one handle or both; can be worn with or without shoe. . Each, $1.50

SPALDING CHAIN BELT ROWING MACHINE No. 600

Suitable Alike for the Athlete or the Ordinary Man or Woman



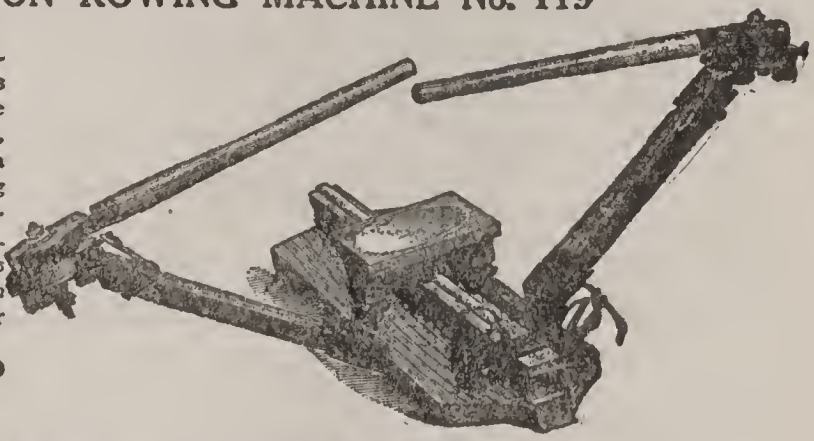
Operated just like rowing a boat.

No. 600. The ideal boat for home use and training purposes. Brings the exercise usually obtained on river or lake into the home or bedroom. Fitted with roller seat and adjustable shoes to fit either a tall or a short person. Thumb-nut arrangement controlling belt allows more or less friction to be thrown into the running parts, imitating the resistance which exists when forcing a row boat through the water. The resistance may be reduced for the weaker sex or increased to suit the strongest athlete. Oars are pivoted in such a way that operator can handle and turn them same as he would during the return and feathering motion with a boat oar. Floor space required, 6x5 feet. . . . . Each, $30.00

SPALDING FRICTION ROWING MACHINE No. 119

No. 119. The means used to produce the resistance is a simple friction clutch, which takes instant hold at the commencement of the stroke and retains the pressure till its completion, when it instantly releases it, precisely as in a boat. Quickly taken apart without loosening any bolts or screws. Each machine is adjustable to any amount of friction or resistance. *Do not use oil on friction cylinder. If its action is not perfectly smooth a little clear soap rubbed on its surface will properly correct its action.* Floor space required, 4½ feet by 4½ feet.

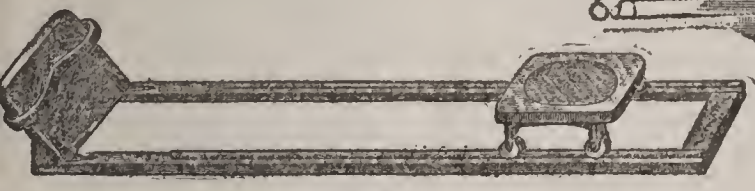
Complete, $16.00



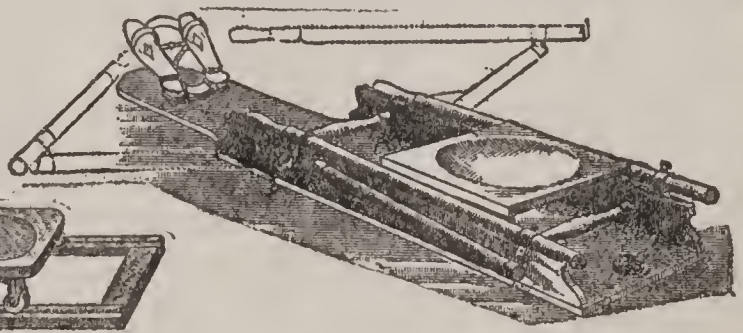
SPALDING ROWING ATTACHMENTS

For use with No. 5 Chest Weight Machines

Particularly suitable for home use. Can be detached from the weight machine quickly and put away in a very small space until the next opportunity for use presents itself. To be used in connection only with chest weights, like Spalding No. 5 (see opposite page) which have center arm adjustment, or with handles arranged so that they can be pulled from a bracket close to the floor.



No. R



No. 1

No. R. Designed to fill the demand for a low priced article of this kind, built along substantial lines. Gives entire satisfaction. Floor space required, 4½ feet by 12 inches. . . . . Complete, $7.50

No. 1. This attachment, as will be noted, has out-riggers and arms similar to the rowing machine, and offers a great variety of work when used in connection with chest weight. Floor space required, 4½ feet by 4½ feet. . . . . Complete, $10.00

NOTE—These Rowing Attachments, Nos. 1 and R, can be used only in connection with the No. 5 Type of Chest Weight Machine

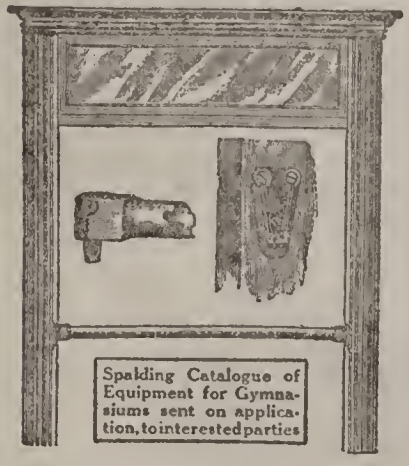
Spalding Adjustable Doorway Horizontal Bar

No. A. The bar itself is made of selected hickory, having steel tubular ends into which iron sockets screw, holding rubber cushions. The socket on one end contains a left hand thread, on the other end a right hand thread. By fitting the bar in the doorway and turning it with the hands the ends are made to expand, and the friction applied by the rubber against the sides of the doorway is sufficient to sustain the weight of a heavy man. This bar may be used for chinning exercises, being adjustable to any height, also for abdominal work, as shown by cuts in margin of this page. Size of doorway in which bar will be used must be stated when ordering, as the adjustment is not great enough to meet all requirements in one size bar. . . . . Each, $4.00

This No. A Bar is supplied regularly to fit any doorway under 33 inches in width.

Bars to fit wider doorways. . . . . Extra, 50c.

Should not be used in doorways wider than 42 inches. If length larger than 42 inches is required, it would be advisable to use a regular horizontal bar.



Spalding Doorway Horizontal Bar

No. 101. The keys fastened to each end of bar fit in the side sockets, which are secured to door jamb and hold the bar firmly in place. The parts are of malleable iron, very light, yet strong enough to sustain the heaviest man. The bar may be quickly removed when not in use, leaving no projecting part. Complete with parts. $2.00

This No. 101 Bar is supplied regularly to fit any doorway under 37 inches. Bars to fit wider doorways, Extra, 50c. Should not be used in doorways wider than 42 inches. If length larger than 42 inches is required, it would be advisable to use a regular horizontal bar.

Extra sockets for doorway. Pair, 50c.

With two pairs of sockets bar may be used for either chinning or abdominal exercises.

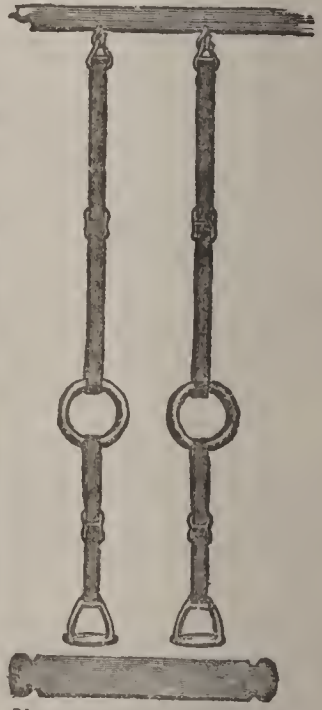
Spalding Home Gymnasium

Combining Swinging Rings, Trapeze, Stirrups, and Swing. Should be in every home where there are growing boys and girls. The simplest and best form of exercise for them.

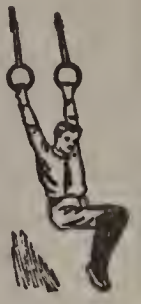
No. 1. The apparatus is supported by two strong screw-hooks in the ceiling, about eighteen inches apart. It can also be used out of doors. The straps are of extra strong webbing and adjustable to any desired height; rings heavily japanned. The apparatus can be put up in any room, and removed in a moment, leaving only two hooks in the ceiling visible. The various combinations can be quickly and easily made. We furnish in addition, a board adjustable to the stirrups, which forms an excellent swing. Complete, ready to put up. $6.00

Showing Swinging Ring or upper portion of outfit

Showing upper part of Apparatus with trapeze bar attached

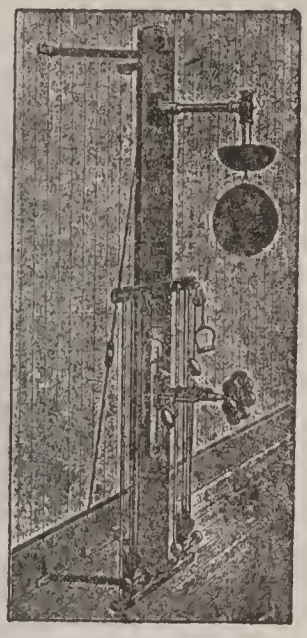


Showing complete outfit with exception of trapeze bar which is supplied



SPALDING HOME GYMNASIUM BOARD

A complete gymnasium for the home on one board. Floor space required, 3 feet by 2 feet. Height, 8 feet. Floor board and staple plate only are attached permanently. Upper board is held in position by pressure of guy rod and will not mar the wall in the slightest degree.

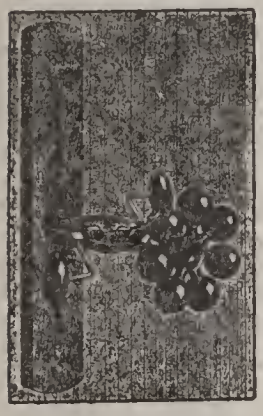


Consists of Board, with attachments for fastening to floor of room, so that walls need not be marred. $10.00
Spalding Abdominal Masseur. 10.00
No. PR. Spalding Adjustable Disk. Complete with Striking Bag. 7.50
No. 2. Spalding Chest Weight Machine, including pair of 5-lb. Dumb Bells. 5.00

Complete, all attached, **$32.50**

Board itself will be furnished separately if desired. . . . . Each, **$10.00**

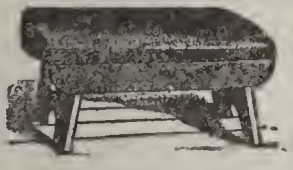
As the complete outfit is made up and carried in stock by us, equipped as noted above, we cannot supply board with different articles already attached.



Spalding Automatic Abdominal Masseur

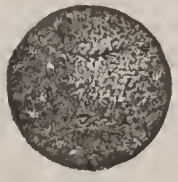
Useful for treatment of constipation, based upon the principle of muscular contraction (the force which nature uses). It effectually applies force in the same direction that nature does, and will gradually discard the use of cathartics. A few moments' use each night, before retiring, and in the morning, upon arising, is all that is necessary. Its action upon the liver and stomach is equally as prompt and effective, and derangements of these organs are speedily remedied. . . . . Complete, **$10.00**

Spalding Bar Stall Bench



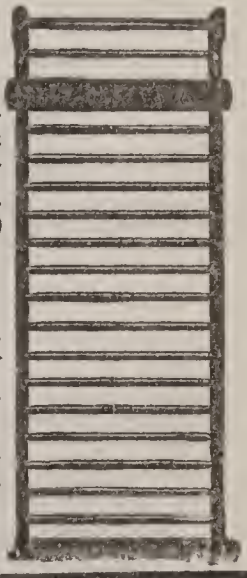
No. **205.** Hard pine, strong and substantial. Top padded with hair felt, canvas covered. Preferable, for sanitary reasons, that canvas be painted (a special elastic paint is used), unless specified, stock benches will be so furnished. . Each, **$4.00**

Spalding Leather Covered Shot



No. **A.** For abdominal massage. An iron ball, wound with electric tape and then covered with very soft, smooth grade of horse hide. 6 or 8 lbs. weight Each, **$5.00**

Spalding Bar Stalls



No. **20H.** Adapted for use in the home; compact, of simple construction, used for the greatest variety of movements affecting every part of the body, and especially abdomen and chest movements. Erected against wall, behind door, or any flat surface. 8 feet high, 36 inches wide and extends 6 inches into room. Floor space required, 1 ft. by 2½ ft. Height, 8 ft. Per section, **$8.00**

Prices in effect July 5, 1915 Subject to change without notice. For Canadian prices see special Canadian Catalogue.

ACCEPT NO SUBSTITUTE THE SPALDING TRADE-MARK GUARANTEES QUALITY

SANDOW'S PATENT SPRING GRIP DUMB BELLS

A. G. Spalding & Bros., Sole American and Canadian Licensees

EUGEN SANDOW, Patentee

Sandow Patent Spring Grip Dumb Bells are used by all the greatest athletes in their training.

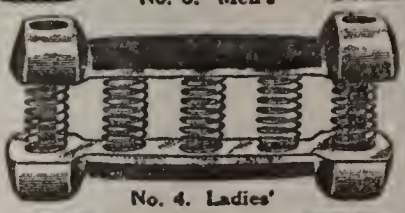
An entire system of physical culture is embraced within the exercises possible with these wonderful dumb bells.

The bells are made in two halves connected by steel springs, the effort necessary in gripping compelling the pupil to continually devote his whole mind to each movement This concentration of will power on each muscle involved is what is responsible for the great results obtained through properly exercising with them.

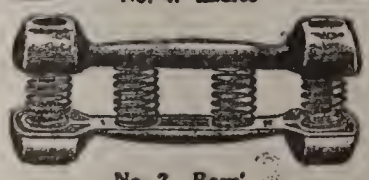
No 6. MEN'S. Nickel-plated; seven steel springs. . . . . Pair, $3.00
No 5. MEN'S. Black enameled, five steel springs . . . . . Pair, $2.00
No. 4. LADIES' Nickel-plated; five steel springs. . . . . Pair, $2.50
No. 2. BOYS'. Nickel-plated; four steel springs. . . . . Pair, $2.00

We include with each pair of Sandow Dumb Bells a chart of exercises by Sandow and full instructions for using. This is the most complete exercising chart ever devised and yet it is very plain and easy to understand. Profusely illustrated.

No. 6. Men's



No. 4. Ladies'



No. 2. Boys'

Model AW Dumb Bells

Spalding Trade-Mark Wood Dumb Bells

Model AW (Stained Finish.) Spalding Trade-Mark quality. Made of good material and superior in shape and finish to the best wood dumb bells of other makes. Each pair wrapped in paper bag. Weights specified are for each bell

½ lb. Bells. Pair, 35c. ★ *$3.36 Doz* 1 lb. Bells. Pair, 45c. ★ *$4.44 Doz*
¾ lb. Bells. " 40c. ★ *3 90* " 1½ lb. Bells. " 55c. ★ *5.70* "
2 lb. Bells. Pair, 70c. ★ *$7.20 Doz.*

Iron Dumb Bell

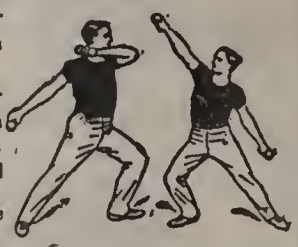
Spalding Iron Dumb Bells—Made on approved models, nicely balanced and finished in black enamel. Sizes 2 to 40 lbs. Pound 6c. ★ *5c. lb.*
Over 40 lbs. Pound 8c. ★ *6½c. lb.*

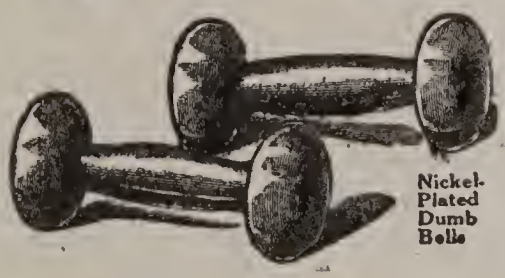
Bar Bells, weight 25 lbs. or more for complete Bar Bell, supplied regularly with steel handles, length 3 feet between bells . . 12c. lb. ★ *10½c. lb.*

Bar Bells, weight 25 lbs. or more for complete Bar Bell, with steel handles, either shorter or longer than regular length, as noted above. 15c. lb. ★ *13½c. lb.*

Prices for Bar Bells, weighing other than above, quoted on application.

Quantity prices in italics will be allowed on 25 lbs. or more of iron dumb bells or 100 lbs. or more of bar bells.





Nickel-Plated Dumb Bells

Spalding Nickel-Plated Dumb Bells (Nickel-Plated and Polished)

No. 1N. 1 lb. Pair, 30c. ★ *$3.24 Doz.* No. 3N. 3 lb. Pair, 70c. ★ *$7.56 Doz.*
No. 2N. 2 lb. " 50c. ★ *5.40* " No. 4N. 4 lb. " 85c. ★ *9.28* "
No. 5N. 5 lb. Pair, $1.00 ★ *$10.80 Doz.*

WITH RUBBER BANDS

No. 1B. 1 lb. Pair, 50c. ★ *$5.40 Doz.* No 3B. 3 lb. Pair, $1.00 ★ *$10.80 Doz.*
No 2B. 2 lb. " 75c. ★ *8.10* " No. 4B. 4 lb. " 1.25 ★ *13.50* "
No. 5B. 5 lb. Pair, $1.50 ★ *$16.20 Doz.*

Nickel-Plated Dumb Bells, with Rubber Bands

The prices printed in italics opposite items marked with ★ will be quoted only on orders for one-dozen pairs or more on sizes up to one pound, and on one-half dozen pairs or more on sizes over one pound in weight Quantity prices will NOT be allowed on items NOT marked with ★

PROMPT ATTENTION GIVEN TO ANY COMMUNICATIONS ADDRESSED TO US

A. G. SPALDING & BROS.
STORES IN ALL LARGE CITIES

FOR COMPLETE LIST OF STORES SEE INSIDE FRONT COVER OF THIS BOOK

ACCEPT NO SUBSTITUTE **THE SPALDING TRADE-MARK** GUARANTEES QUALITY

SPALDING TRADE-MARK INDIAN CLUBS

STAINED FINISH

The following clubs bear our Trade-Mark, are made of good material, and are far superior in shape and finish to the best clubs of other makes. Each pair wrapped in paper bag.

No. A No. AA

Model BS—*Weights specified are for each club*

½ lb.	Pair, $	.35 ★	*$3.36 Doz.*
¾ lb.	"	.40 ★	*3.96* "
1 lb.	"	.45 ★	*4.44* "
1½ lb.	"	.55 ★	*5.76* "
2 lb.	"	.70 ★	*7.20* "
3 lb.	"	.85 ★	*9.12* "

Model BS

Spalding Exhibition Clubs

Handsomely finished in ebonite; for exhibition and stage purposes. The clubs are hollow, with large body, and although extremely light, represent a club weighing three pounds or more.

No. A. Ebonite finish. . . . . Pair, $3.50
No. AA. With German silver bands. . . " 5.00

Indian Club and Dumb Bell Hangers

Made of Iron and Nicely Japanned

No. 1. Pair, 15c. ★ *$1.68 Doz.*
No. 1M. Mounted on oak strips. Pair, 25c. ★ *$2.70 Doz.*

Savage Bar Bell

Especially designed by Dr. Watson L. Savage

Model S. Has large pear shaped ends, with a flexible hickory shaft ½-inch in diameter, producing a vibratory exercise similar to that obtained with the French wand. Each, 50c. ★ *$5.40 Doz.*

Spalding Ash Bar Bells

No. 2. Selected material, highly polished, 5 feet long. . Each, 45c. ★ *$4.50 Doz.*

School Wand

No. 3. 3½ feet long. Straight grain maple, black finish. Each, 12c. ★ *$1.20 Doz.*

Calisthenic Wand

No. 4. 4½ feet long. 1 inch diameter. Black finish. . . . . Each, 15c. ★ *$1.44 Doz.*

The prices printed in italics opposite items marked with ★ will be quoted only on orders for one dozen pairs or more on sizes up to one pound, and on one-half dozen pairs or more on sizes over one pound in weight
On Wands and Bar Bells quantity prices will be allowed on one-half dozen or more.

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ACCEPT NO SUBSTITUTE THE SPALDING TRADE-MARK GUARANTEES QUALITY

SPALDING Gymnasium and Athletic Equipment

Made of Best Materials
Durable
Comfortable
Correct in Design
Carefully Made

ATHLETIC UNIFORMS differ in construction from ordinary clothes in that they must be especially strengthened in the parts bearing the strain. Only long years of practical experience in making athletic uniforms can determine the weak spots.

Spalding has had this experience and puts it into practice in their own factory, where these goods are made.

Those who wear them have told us they are durable and comfortable.

SPALDING GYMNASTIC UNIFORMS have been used for years by colleges, schools, Y. M. C. A.'s, clubs, etc.

Why? Because the leaders of such organizations and institutions have discovered they meet the approval of those using them, thus eliminating friction between the director and his pupils or members.

Why? Because the wearer is perfectly satisfied.

WRITE FOR

SPALDING CATALOGUE

CONTAINS A FULL LINE OF
Shirts, Tights, Trunks, Shoes, etc.
Suitable for Gymnasium and Athletic Use

FREE ON REQUEST

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A. G. SPALDING & BROS.
STORES IN ALL LARGE CITIES

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Prices in effect July 5, 1915. Subject to change without notice. For Canadian prices see special Canadian Catalogue.

STANDARD QUALITY

An article that is universally given the appellation *"Standard"* is thereby conceded to be the Criterion, to which are compared all other things of a similar nature. For instance, the Gold Dollar of the United States is the Standard unit of currency, because it must legally contain a specific proportion of pure gold, and the fact of its being Genuine is *guaranteed* by the Government Stamp thereon. As a protection to the users of this currency against counterfeiting and other tricks, considerable money is expended in maintaining a Secret Service Bureau of Experts. Under the law, citizen manufacturers must depend to a great extent upon Trade-Marks and similar devices to protect themselves against counterfeit products—without the aid of "Government Detectives" or "Public Opinion" to assist them.

Consequently the "Consumer's Protection" against misrepresentation and "inferior quality" rests entirely upon the integrity and responsibility of the "Manufacturer."

A. G. Spalding & Bros. have, by their rigorous attention to "Quality," for forty years, caused their Trade-Mark to become known throughout the world as a Guarantee of Quality as dependable in their field as the U. S. Currency is in its field.

The necessity of upholding the guarantee of the Spalding Trade-Mark and maintaining the Standard Quality of their Athletic Goods, is, therefore, as obvious as is the necessity of the Government in maintaining a Standard Currency.

Thus each consumer is not only insuring himself but also protecting other consumers when he assists a Reliable Manufacturer in upholding his Trade-Mark and all that it stands for. Therefore, we urge all users of our Athletic Goods to assist us in maintaining the Spalding Standard of Excellence, by insisting that our Trade-Mark be plainly stamped on all athletic goods which they buy, because without this precaution our best efforts towards maintaining Standard Quality and preventing fraudulent substitution will be ineffectual.

Manufacturers of Standard Articles invariably suffer the reputation of being high-priced, and this sentiment is fostered and emphasized by makers of "inferior goods," with whom low prices are the main consideration.

A manufacturer of recognized Standard Goods, with a reputation to uphold and a guarantee to protect, must necessarily have higher prices than a manufacturer of cheap goods, whose idea of and basis of a claim for Standard Quality depends principally upon the eloquence of the salesman.

We know from experience that there is no quicksand more unstable than poverty in quality—and we avoid this quicksand by Standard Quality.

A. G. Spalding & Bros.

STANDARD POLICY

A Standard Quality must be inseparably linked to a Standard Policy.

Without a definite and Standard Mercantile Policy, it is impossible for a Manufacturer to long maintain a Standard Quality.

To market his goods through the jobber, a manufacturer must provide a profit for the jobber as well as for the retail dealer. To meet these conditions of Dual Profits, the manufacturer is obliged to set a proportionately high list price on his goods to the consumer.

To enable the glib salesman, when booking his orders, to figure out attractive profits to both the jobber and retailer, these high list prices are absolutely essential; but their real purpose will have been served when the manufacturer has secured his order from the jobber, and the jobber has secured his order from the retailer.

However, these deceptive high list prices are not fair to the consumer, who does not, and, in reality, is not ever expected to pay these fancy list prices.

When the season opens for the sale of such goods, with their misleading but alluring high list prices, the retailer begins to realize his responsibilities, and grapples with the situation as best he can, by offering "special discounts," which vary with local trade conditions.

Under this system of merchandising, the profits to both the manufacturer and the jobber are assured; but as there is no stability maintained in the prices to the consumer, the keen competition amongst the local dealers invariably leads to a demoralized cutting of prices by which the profits of the retailer are practically eliminated.

This demoralization always reacts on the manufacturer. The jobber insists on lower, and still lower, prices. The manufacturer, in his turn, meets this demand for the lowering of prices by the only way open to him, viz.: the cheapening and degrading of the quality of his product.

The foregoing conditions became so intolerable that, 17 years ago, in 1899, A. G. Spalding & Bros. determined to rectify this demoralization in the Athletic Goods Trade, and inaugurated what has since become known as "The Spalding Policy."

The "Spalding Policy" eliminates the jobber entirely, so far as Spalding Goods are concerned, and the retail dealer secures the supply of Spalding Athletic Goods direct from the manufacturer by which the retail dealer is assured a fair, legitimate and certain profit on all Spalding Athletic Goods, and the consumer is assured a Standard Quality and is protected from imposition.

The "Spalding Policy" is decidedly for the interest and protection of the users of Athletic Goods, and acts in two ways:

FIRST.—The user is assured of genuine Official Standard Athletic Goods.
SECOND.—As manufacturers, we can proceed with confidence in purchasing at the proper time, the very best raw materials required in the manufacture of our various goods, well ahead of their respective seasons, and this enables us to provide the necessary quantity and absolutely maintain the Spalding Standard of Quality.

All retail dealers handling Spalding Athletic Goods are requested to supply consumers at our regular printed catalogue prices—neither more nor less—the same prices that similar goods are sold for in our New York, Chicago and other stores.

All Spalding dealers, as well as users of Spalding Athletic Goods, are treated exactly alike, and no special rebates or discriminations are allowed to anyone.

This, briefly, is the "Spalding Policy," which has already been in successful operation for the past 17 years, and will be indefinitely continued.

In other words, "The Spalding Policy" is a "square deal" for everybody.

A. G. SPALDING & BROS.

By A. G. Spalding.
President.

SPALDING'S

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SALT LAKE CITY
PORTLAND
MINNEAPOLIS
ST. PAUL
DENVER
DALLAS

Factories owned and operated by A.G.Spalding & Bros. and where all of Spalding's Trade-Marked Athletic Goods are made are located in the following cities

NEW YORK	**CHICAGO**	**SAN FRANCISCO**	**CHICOPEE, MASS.**
BROOKLYN	**BOSTON**	**PHILADELPHIA**	**LONDON, ENG.**

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